

**Recent Monographs of Bell System
Technical Papers Not Published
in This Journal**

Copies of these monographs may be obtained on request to the Public Relations and Publication Division, Bell Telephone Laboratories, Inc., 463 West Street, New York 14, N. Y. The numbers of the monographs should be given in all requests.

Numerical Index of Recent Monographs of Bell System Technical Papers Not Published in This Journal*

- 3793** Matthias, B. T., Compton, V. B. and Corenzwit, E., *Some New Superconducting Compounds*, Phys. and Chem. of Solids, 19, pp. 130-133 Apr. 1961.
- 3854** Lax, M., and Mengerl, P., *Influence of Trapping, Diffusion and Recombination on Carrier Concentration Fluctuations*, Phys. and Chem. of Solids, 14, pp. 248-267, July 1960.
- 3879** Raisbeck, G., *An Optimum Shape for Fairing the Edge of an Electrode*, Amer. Math. Mon., 68, pp. 217-225, Mar. 1961.
- 3903** McCall, D. W., Anderson, E. W. and Huggins, C. M., *Self-Diffusion in Linear Dimethylsiloxanes*, J. Chem. Phys., 34, pp. 804-808, Mar. 1961.
- 3908** Burbank, R. D. and Heidenreich, R. D., *Microtwinning in Epitaxial Nickel-Iron Films*, Philos. Mag., 5, pp. 373-382, Apr. 1960.
- 3909** Morrison, J., *Behavior of Titanium in a High Vacuum*, Proc. Sixth Natl. Symp. on Vacuum Tech. Trans., pp. 291-296.
- 3910** Pierce, J. R., *Considerations in Analysis and Behavior of Wave Phenomena in Electron Beams*, J. Nuclear Energy, Part C, 2, pp. 73-80, 135-137, Jan. 1961.
- 3911** Courtney-Pratt, J. S., *Possibility of Photographing a Satellite Near the Moon*, J. Photographic Sci., 9, pp. 36-55, Jan./Feb. 1961.
- 3912** Baldwin, J. A., Jr., *Magnetic Device for High-Speed Sending of Small Currents*, A.I.E.E. Trans., Part 1, No. 53, pp. 1-8, Mar. 1961.
- 3913** Denton, R. T., *Characteristics of a Ferromagnetic Amplifier Using Longitudinal Pumping*, J. Appl. Phys., 32, pp. 300S-307S, Mar. 1961.
- 3914** Jaccarino, V., *NMR and Conduction Electron Polarization in Rare-Earth Metals*, J. Appl. Phys., 32, pp. 102S-106S, Mar. 1961.
- 3915** Kadri, F. V., *Control in Transistor Converter Circuits by Means of R-C Networks*, A.I.E.E. Trans., Part 1, No. 53, pp. 43-48, Mar. 1961.
- 3916** Wertheim, G. K., *Mossbauer Effect: Applications to Magnetism*, J. Appl. Phys., 32, pp. 110S-117S, Mar. 1961.
- 3917** Spitzer, W. G., Wernick, J. H. and Wolfe, R., *Electrical and Optical Properties of CdSnAs₂*, Solid-State Elec., 2, pp. 96-99, Mar. 1961.
- 3918** Leutritz, J., *Determination of Moisture and Density for Assays of Oil-Type Preservatives*, 1960 Proc. of Amer. Wood Preservers' Assoc., 56, pp. 20-24, 1960.
- 3919** Batterman, B. W., Chipman, D. R. and DeMarco, J. J., *Measurement of Atomic Scattering Factors of Iron, Copper, and Aluminum*, Phys. Rev., 122, pp. 68-74, Apr. 1, 1961.
- 3920** Crubbs, W. J., *Unidirectional*

* This listing covers monographs 3793 through 4039 and is not inclusive, covering only those monographs of articles not published in this journal.

- Amplifier with Esaki Diodes*, I.R.E. Trans. on Electron Devices, *ED-8*, pp. 163-169, Mar. 1961.
- 3921** Beněš, V. E., *Extensions of Wiener's Tauberian Theorem for Positive Measures*, J. of Math. Analysis and Applications, *2*, pp. 1-20, Feb. 1961.
- 3922** Fuller, C. S., *Kinetics of Donor Reactions in Oxygen-Doped Germanium*, Phys. and Chem. of Solids, *19*, pp. 18-28, Apr. 1961.
- 3923** Nicollian, E. H., *A Laboratory Leak Detector Using an Omegatron*, Seventh Natl. Symp. on Vacuum Tech. Trans., pp. 48-54, 1960.
- 3924** Pollak, H. O., *Energy Distribution of Band-Limited Functions Whose Samples on a Half Line Vanish*, J. Math. Analysis and Applications, *2*, pp. 299-332, Apr. 1961.
- 3925** Tannenbaum, E., *Detailed Analysis of Thin Phosphorous-Diffused Layers in P-Type Silicon*, Solid-State Elec., *2*, pp. 123-132, Mar. 1961.
- 3926** Geschwind, S. and Remeika, J. P., *Paramagnetic Resonance of Gd^{3+} in Al_2O_3* , Phys. Rev., *122*, pp. 757-761, May 1, 1961.
- 3927** Hagstrum, H. D., *Auger Neutralization of Ions at the Surface of a Diamond-Type Semiconductor*, Phys. Rev., *122*, pp. 83-113, Apr. 1, 1961.
- 3928** Hopfield, J. J. and Thomas, D. G., *Fine Structure and Magneto-Optic Effects in the Exciton Spectrum of Cadmium Sulfide*, Phys. Rev., *122*, pp. 35-52, Apr. 1, 1961.
- 3930** Allen, F. G., *Field Emission from Si and Ge; Field Desorption and Surface Migration*, Phys. and Chem. of Solids, *19*, pp. 87-99, Apr. 1961.
- 3931** Ashkin, A., *A Low-Noise Microwave Quadrupole Amplifier*, Proc. I.R.E., *49*, pp. 1016-1020, June 1961.
- 3932** Baruch, P., *Mobility of Radiation-Induced Defects in Germanium*, J. Appl. Phys., *32*, pp. 653-659, Apr. 1961.
- 3933** Schawlow, A. L., *Infrared and Optical Masers*, Solid State J., *2*, pp. 21-29, June 1961.
- 3934** Gianola, U. F., *All-Magnetic Logic, Part 1*—J. Appl. Phys., *32*, pp. 278-348, March 1961; *Part 2*—Solid State J., *2*, pp. 21-29, Aug. 1961.
- 3936** Helfand, E., *Theory of the Molecular Friction Constant*, Phys. of Fluids, *4*, pp. 681-691, June 1961.
- 3937** Alff, C. and Wertheim, G. K., *Hyperfine Structure of Fe^{27} in Yttrium-Iron Garnet from the Mossbauer Effect*, Phys. Rev., *122*, pp. 1414-1417, June 1, 1961.
- 3938** Bateman, T., Mason, W. P. and McSkimin, H. J., *Third-Order Elastic Moduli of Germanium*, J. Appl. Phys., *32*, pp. 928-936, May 1961.
- 3939** Batterman, B. W., *Effect of Long Wavelength Harmonics on Double Crystal Diffractometer Measurements*, Rev. of Sci. Instr., *32*, pp. 393-396, Apr. 1961.
- 3940** Beneš, V. E., *Method for Studying Stability of a Class of Integro-differential Equations*, J. of Math and Phys., *40*, pp. 55-67, Apr. 1961.
- 3941** Boyle, W. S. and Howard, R. E., *Transition to High-Field Limit in Zeeman Spectra of Germanium Donors*, Phys. and Chem. of Solids, *19*, pp. 181-188, May 1961.
- 3942** Bozorth, R. M., Wolff, P. A., Davis, D. D., Compton, V. B. and Wernick, J. H., *Ferromagnetism in Dilute Solutions of Cobalt in Palladium*, Phys. Rev., *122*, pp. 1157-1160, May 15, 1961.
- 3943** Burgiel, J. C., Jaccarino, V. and Schawlow, A. L., *Nuclear Quadrupole Resonance in an Antiferromagnet*, Phys. Rev., *122*, pp. 429-436, Apr. 15, 1961.
- 3944** Burrus, C. A., *Gallium Arsenide Esaki Diodes for High-Frequency Applications*, J. Appl. Phys., *32*, pp. 1031-1036, June 1961.

- 3945 Cowell, W. R., *Use of Group Codes in Error Detection and Message Retransmission*, I.R.E. Trans. on Info. Theory, *IT-7*, pp. 168-171, July 1961.
- 3946 Fuller, C. S. and Doleiden, F. H., *Ionization Behavior of Donors Formed from Oxygen in Germanium*, Phys. and Chem. of Solids, *19*, pp. 251-260, May 1961.
- 3947 Garn, P. D. and Kessler, J. E., *Effluence Analysis as an Aid to Thermal Analysis*, Analytical Chem., *33*, pp. 952-954, June 1961.
- 3948 Gershenzon, M. and Mikulyak, R. M., *Vapor Phase Preparation of Gallium Phosphide Crystals*, J. Electrochem. Soc., *108*, pp. 548-551, June 1961.
- 3949 Gordon, E. I., and Ashkin, A., *Energy Interchange between Waves in Quadrupolar Pump Fields*, J. Appl. Phys., *32*, pp. 1137-1144, June 1961.
- 3950 Hagstrum, H. D., *Monolayer Adsorption and Bombardment Damage on Auger Electron Ejection from Germanium*, J. Appl. Phys., *32*, pp. 1015-1019, June 1961.
- 3951 Kaenel, R. A., *High-Speed Analog-to-Digital Converters Utilizing Tunnel Diodes*, I.R.E. Trans. on Electronic Computers, *EC-10*, pp. 273-284, June 1961.
- 3952 Kisliuk, P. P., *Reflection of Slow Electrons from Tungsten Single Crystals*, Phys. Rev., *122*, pp. 405-411 Apr. 15, 1961.
- 3953 Klüver, J. W., *Parametric Coupling between Transverse Waves on O- and M-Type Beams*, J. Appl. Phys., *32*, pp. 1111-1114, June 1961.
- 3954 Kramer, H. P., Bogert, B.P. and Hagelbarger, D. W., *Stability of Pressure-Supported Molten Zones in Horizontal Sheets*, J. Appl. Phys., *32*, p. 764, May 1961.
- 3955 McSkimin, H. J., *Measurement of Elastic Moduli by means of Ultrasonic Waves*, J. Acoustical Soc. of Amer., *33*, pp. 606-615, May 1961.
- 3956 Meitzler, A. H., *Mode Coupling Occurring in the Propagation of Elastic Pulses in Wires*, J. Acoustical Soc. of Amer., *33*, pp. 435-445, Apr. 1961.
- 3957 Miller, R. C. and Savage, A., *Motion of 180° Domain Walls in BaTiO₃ under the Application of a Train of Voltage Pulses*, J. Appl. Phys., *32*, pp. 714-721, Apr. 1961.
- 3958 Mina, K. V. and Newhall, E. E., *Generating All Boolean Functions of N Variables Using a Single Magnetic Circuit*, I.R.E. Trans. on Electronic Computers, *EC-10*, pp. 151-156, June 1961.
- 3959 Pappalardo, R., *Cubic Wave Functions for J Half-Integer*, J. of Chem. Phys., *34*, pp. 1380-1388, Apr. 1961.
- 3960 Pollak, M. and Geballe, T. H., *Low-Frequency Conductivity Due to Hopping Processes in Silicon*, Phys. Rev., *122*, pp. 1742-1753, June 15, 1961.
- 3961 Schawlow, A. L., Piksis, A. H., and Sugano, S., *Strain-Induced Effects on the Degenerate Spectral Line of Chromium in MgO Crystals*, Phys. Rev., *122*, pp. 1469-1476, June 1, 1961.
- 3962 Sugano, S. and Peter, M., *Effect of Configuration Mixing and Covalency on the Energy Spectrum of Ruby*, Phys. Rev., *122*, pp. 381-386, Apr 15, 1961.
- 3963 Theuerer, H. C., *Epitaxial Silicon Films by the Hydrogen Reduction of SiCl₄*, J. Electrochem. Soc., *108*, pp. 649-653, July 1961.
- 3965 Williams, W. H. *Generating Unbiased Ratio and Regression Estimators*, Biometrics, *17*, pp. 267-274, June 1961.
- 3966 Yariv, A. and Kompfner, R., *Noise Temperature in Distributed Amplifiers*, I.R.E. Trans. on Elec-

- tron Devices, *ED-8*, pp. 207-211, May 1961.
- 3968** Hagstrum, H. D., *Oxygen Adsorption on Silicon and Germanium*, *J. Appl. Phys.*, **32**, pp. 1020-1022, June 1961.
- 3980** McLean, D. A., Wehe, H. G. and Dante, B. T., *Polycarbonates as Capacitor Dielectrics*, *I.R.E. Trans. on Component Parts*, *CP-8*, pp. 89-93, June 1961.
- 3981** Logan, R. A., Augustyniak, W. M. and Gilbert, J. F., *Electron Bombardment Damage in Silicon Esaki Diodes*, *J. Appl. Phys.*, **32**, pp. 1201-1205, July 1961.
- 3983** Pappalardo, R., *Absorption Spectra of Cu^{2+} in Different Crystal Coordinations*, *J. Molecular Spectroscopy*, **6**, pp. 554-571, June 1961.
- 3984** Moore, G. E., *Dissociation of Adsorbed CO by Slow Electrons*, *J. Appl. Phys.*, **32**, pp. 1241-1251, July 1961.
- 3985** Schwartz, N., Gresh, M. and Karlik, S., *Niobium Solid Electrolytic Capacitors*, *J. Electrochem. Soc.*, **108**, pp. 750-758, Aug. 1961.
- 3986** Klauder, J. R., *Modification of Electron Energy Levels by Impurity Atoms*, *Annals of Phys.*, **14**, pp. 43-76, July 1961.
- 3987** Gershenzon, M. and Mikulyak, R. M., *Electroluminescence at p-n Junctions in Gallium Phosphide*, *J. Appl. Phys.*, **32**, pp. 1338-1348, July 1961.
- 3988** Ahearn, A. J., *Mass Spectrographic Analysis of Insulators*, *J. Appl. Phys.*, **32**, pp. 1195-1197, July 1961.
- 3990** Ahearn, A. J., *Mass Spectrographic Detection of Impurities in Liquids*, *J. Appl. Phys.*, **32**, pp. 1197-1200, July 1961.
- 3991** Stone, H. A., Jr., and Warner, R. M., *The Field-Effect Tetrode*, *Proc. I.R.E.*, **49**, pp. 1170-1183, July 1961.
- 3992** Garn, P. D., *Thermal Analysis—A Critique*, *Analytical Chem.*, **33**, pp. 1247-1251, Aug. 1961.
- 3993** David, E. E., Jr., *The Reproduction of Sound*, *Sci. Amer.*, **204**, pp. 72-84, Aug. 1961.
- 3994** Dietz, R. E. and Selwood, P. W., *Effect of Chemisorbed Hydrogen on the Magnetization of Nickel*, *J. Chem. Phys.*, **35**, pp. 270-281, July 1961.
- 3995** Douglass, D. C., *Self-Diffusion and Velocity Correlation*, *J. Chem. Phys.*, **35**, pp. 81-90, July 1961.
- 3996** Schroeder, M. R., and Logan, B. F., *Improved Quasi-Stereophony and Colorless Artificial Reverberation, Part 1*, *J. Acoustical Soc. America*, **33**, pp. 1061-1064, Aug. 1961, *Part 2*, *J. Audio Engr. Soc.*, **9**, pp. 102-197, July 1961.
- 3997** von Roosbroeck, W., *Current-Carrier Transport with Space Charge in Semiconductors*, *Phys. Rev.*, **123**, pp. 474-490, July 15, 1961.
- 3998** Kometani, T. Y., *Determination of Sodium Fluoride in Wood*, *Proc. American Wood-Preserver's Assoc.*, **57**, pp. 176-179.
- 3999** Speeth, S. D., *Seismometer Sounds*, *J. Acoustical Soc. of America*, **33**, pp. 909-916, July 1961.
- 4001** Basseches, H., *Oxidation of Sputtered Tantalum Films*, *I.R.E. Trans. on Component Parts*, *CP-8*, pp. 51-56, June 1961.
- 4002** Chynoweth, A. G. and Murray, A. A., *Pinch Effect in Indium Antimonide*, *Phys. Rev.*, **123**, pp. 515-520, July 15, 1961.
- 4003** Kurokawa, K., *Actual Noise Measure of Linear Amplifiers*, *Proc. of I.R.E.*, **49**, pp. 1391-1397, Sept. 1961.
- 4004** Laudise, R. A., and Ballman, A. A., *Solubility of Quartz under Hydrothermal Conditions*, *J. Phys. Chem.*, **65**, pp. 1396-1400, Aug. 1961.
- 4005** Lee, C. Y., *Categorizing Automata by W-Machine Programs*, *J. of*

- the Association for Computing Machinery, 8, pp. 384-399, July 1961.
- 4006 Pappalardo, R. and Dietz, R. E., *Absorption Spectra of Transition Ions in CdS Crystals*, Phys. Rev., 123, pp. 1188-1203, Aug. 15, 1961.
- 4007 Roy, A. S., *New Falling Velocity Method of Density Determination for Small Solid Samples*, Analytical Chem., 33, pp. 1426-1428, Sept. 1961.
- 4008 Speeth, S. D. and Mathews, M. V., *Sequential Effects in the Signal-Detection Situation*, J. Acous. Soc. of America, 33, pp. 1046-1054, Aug. 1961.
- 4009 Tien, P. K., *Noise in Parametric Amplifiers*, Acta Electronica, 4, pp. 424-446, July 1960.
- 4010 Wertheim, G. K. and Wernick, J. H., *Fe^{57} Mossbauer Effect in Cu-Ni Alloys*, Phys. Revs., 123, pp. 755-757 Aug. 1, 1961.
- 4011 Wilk, M. B. and Gnanadesikan, G., *Graphical Analysis of Multi-Response Experimental Data Using Ordered Distances*, Proc. of the National Academy of Sciences, 47, pp. 1209-1212, Aug. 1961.
- 4012 Barrett, W. A., Humphrey, F. B., Ruff, J. A. and Stadler, H. L., *A Card-Changeable Permanent Magnet Twistor Memory of Large Capacity*, I.R.E. Trans. on Electronic Computers, EC-10, pp. 451-461, Sept. 1961.
- 4013 Kadota, T. T. and Bourne, H. C., Jr., *Stability Conditions of Pulse-Width-Modulated Systems through the Second Method of Lyapunov*, I.R.E. Trans. on Automatic Control, AC-6, pp. 266-276, Sept. 1961.
- 4014 Kaiser, W., Garrett, C. G. B. and Wood, D. L., *Fluorescence and Optical Maser Effects in $CaF_2 : Sm^{++}$* , Phys. Rev., 123, pp. 766-776, Aug. 1, 1961.
- 4015 Highleyman, W. H., *An Analog Method for Character Recognition*, I.R.E. Trans. on Electronic Computers, EC-10, pp. 502-512, Sept. 1961.
- 4017 Lee, C. Y., *An Algorithm for Path Connections and Its Applications*, I.R.E. Trans. on Electronic Computers, EC-10, pp. 346-365, Sept. 1961.
- 4018 MacPherson, D. H. and York R. K., *Semipermanent Storage by Capacitive Coupling*, I.R.E. Trans. on Electronic Computers, EC-10, pp. 446-451, Sept. 1961.
- 4019 Rosenthal, C. W., *Computing Machine Aids to a Development Project*, I.R.E. Trans. on Electronic Computers, EC-10, pp. 440-406, Sept. 1961.
- 4021 Geller, S., Williams, H. J. and Sherwood, R. C., *Magnetic and Crystallographic Study of Hd-Substituted Y and Gd Fe Garnets*, Phys. Rev., 123, pp. 1692-1699, Sept. 1, 1961.
- 4024 Anderson, P. W., *Localized Magnetic States in Metals*, Phys. Rev., 124, pp. 41-53, Oct. 1, 1961.
- 4027 Mims, W. B., Nassau, K., and McGee, J. D., *Spectral Diffusion in Electron Resonance Lines*, Phys. Rev., 123, pp. 2059-2069, Sept. 15, 1961.
- 4028 Frisch, H. L., *Time Lag in Thermalization of a Fast Ion in a Plasma*, Phys. of Fluids, 4, pp. 1167-1171, Sept. 1961.
- 4029 Tang, C. C. H., *Optimization of Waveguide Tapers Capable of Multimode Propagation*, I.R.E. Trans. on Microwave Theory and Tech., MTT-9, pp. 442-452, Sept. 1961.
- 4034 Gupta, S. S., *Percentage Points and Modes of Order Statistics from the Normal Distribution*, Annals of Math. Statistics, 32, pp. 888-893, Sept. 1961.
- 4039 Platzman, P. M. and Buchsbaum, S. J., *Effect of Collisions on the Landau Damping of Plasma Oscillations*, Phys. of Fluids, 4, pp. 1288-1292, Oct. 1961.

Alphabetic Index of Authors of Recent Monographs of Bell System Technical Papers Not Published in This Journal

AHEARN, A. J.

Mass Spectrographic Analysis of Insulators, Monograph 3988.

AHEARN, A. J.

Mass Spectrographic Detection of Impurities in Liquids, Monograph 3990.

ALFF, C. and WERTHEIM, G. K.

Hyperfine Structure of Fe^{57} in Yttrium-Iron Garnet from the Mossbauer Effect, Monograph 3937.

ALLEN, F. G.

Field Emission from Si and Ge; Field Desorption and Surface Migration, Monograph 3930.

ANDERSON, E. W., see McCall, D. W.

ANDERSON, P. W.

Localized Magnetic States in Metals, Monograph 4024.

ASHKIN, A.

A Low-Noise Microwave Quadrupole Amplifier, Monograph 3931.

ASHKIN, A., see Gordon, E. I.

AUGUSTYNIAK, W. M., see Logan, R. A.

BALDWIN, J. A.

Magnetic Device for High-Speed Sending of Small Currents, Monograph 3912.

BALLMAN, A. A., see Laudise, R. A.

BARRETT, W. A., HUMPHREY, F. B., RUFF, J. A. and STADLER, H. L.
A Card-Changeable Permanent Magnet Twistor Memory of Large Capacity, Monograph 4012.

BARUCH, P.

Mobility of Radiation-Induced Defects in Germanium, Monograph 3932.

BASSECHES, H.

Oxidation of Sputtered Tantalum Films, Monograph 4001.

BATEMAN, T., MASON, W. P. AND MCSKIMIN, H. J.

Third-Order Elastic Moduli of Germanium, Monograph 3938.

BATTERMAN, B. W.

Effect of Long Wavelength Harmonics on Double Crystal Diffractometer Measurements, Monograph 3939.

BATTERMAN, B. W., CHIPMAN, D. R., AND DEMARCO, J. J.

Measurement of Atomic Scattering Factors of Iron, Copper, and Aluminum, Monograph 3919.

BENEŠ, V. E.

Extensions of Wiener's Tauberian Theorem for Positive Measures, Monograph 3921.

BENEŠ, V. E.

Method for Studying Stability of a Class of Integrodifferential Equations, Monograph 3940.

BOGERT, B. P., see KRAMER, H. P.

BOURNE, H. C., JR., see KADOTA, T. T.

BOYLE, W. S., and HOWARD, R. E.

Transition to High-Field Limit in Zeeman Spectra of Germanium Donors, Monograph 3941.

BOZORTH, R. M., WOLFF, P. A., DAVIS, D. D., COMPTON, V. B., and WERNICK, J. J.

Ferromagnetism in Dilute Solutions of Cobalt in Palladium, Monograph 3942.

BUCHSBAUM, S. J., see Platzman, P. M.

BURBANK, R. E., and HEIDENREICH, R. D.

Microtwinning in Epitaxial Nickel-Iron Films, Monograph 3908.

BURGIEL, J. C., JACCARINO, V., and SCHAWLOW, A. L.

Nuclear Quadrupole Resonance in an Antiferromagnet, Monograph 3943.

BURRUS, C. A.

Gallium Arsenide Esaki Diodes for High-Frequency Applications, Monograph 3944.

CHIPMAN, D. R., see Batterman, B. W.

CHYNOWETH, A. G., and MURRAY, A. A.

Pinch Effect in Indium Antimonide, Monograph 4002.

COMPTON, V. B., see Bozorth, R. M.

COMPTON, V. B., see Matthias, B. T.

CORENZWIT, E., see Matthias, B. T.

COURTNEY-PRATT, J. S.

Possibility of Photographing a Satellite Near the Moon, Monograph 3911.

COWELL, W. R.

Use of Group Codes in Error Detection and Message Retransmission, Monograph 3945.

CRUBBS, W. J.

Unidirectional Amplifier with Esaki Diodes, Monograph 3920.

DANTE, B. T., see McLean, D. A.

DAVID, E. E., JR.

The Reproduction of Sound, Monograph 3993.

DAVIS, D. D., see Bozorth, R. M.

DEMARCO, J. J., see Batterman, B. W.

DENTON, R. T.

Characteristics of a Ferromagnetic Amplifier Using Longitudinal Pumping, Monograph 3913.

DIETZ, R. E., and SELWOOD, P. W.

Effect of Chemisorbed Hydrogen on the Magnetization of Nickel, Monograph 3994.

DIETZ, R. E., see Pappalardo, R.

DOLEIDEN, F. H., see Fuller, C. S.

DOUGLASS, D. C.

Self-Diffusion and Velocity Correlation, Monograph 3995.

FRISCH, H. L.

Time Lag in Thermalization of a Fast Ion in a Plasma, Monograph 4028.

FULLER, C. S.

Kinetics of Donor Reactions in Oxygen-Doped Germanium, Monograph 3922

FULLER, C. S. and DOLEIDEN, F. H.

Ionization Behavior of Donors Formed from Oxygen in Germanium, Monograph 3946.

GARN, P. D.

Thermal Analysis—A Critique, Monograph 3992.

GARN, P. D., and KESSLER, J. E.

Effluence Analysis as an Aid to Thermal Analysis, Monograph 3947.

GARRETT, C. G. B., see Kaiser, W.

GEHALLE, T. H., see Pollak, M.

GELLER, S., WILLIAMS, H. J., and SHERWOOD, R. C.

Magnetic and Crystallographic Study of Hd-Substituted Y and Gd Fe Garnets, Monograph 4021.

GERSHENZON, M. and MIKULYAK, R. M.

Vapor Phase Preparation of Gallium Phosphide Crystals, Monograph 3948.

GERSHENZON, M., and MIKULYAK, R. M.

Electroluminescence at p-n Junctions in Gallium Phosphide, Monograph 3987.

GESCHWIND, S., and REMEIKA, J. P.

Paramagnetic Resonance of Gd^{3+} in Al_2O_3 , Monograph 3926.

GIANOLA, U. F.

All-Magnetic Logic, Monograph 3934.

GILBERT, J. F., see Logan, R. A.

GNANADESIKAN, G., see Wilk, M. B.

GORDON, E. I., and ASHKIN, A.

Energy Interchange between Waves in Quadrupolar Pump Fields, Monograph 3949.

GRESH, M., see Schwartz, N.

GUPTA, S. S.

Percentage Points and Modes of Order Statistics from the Normal Distribution, Monograph 4034.

HAGELBARGER, D. W., see Kramer, H. P.

HAGSTRUM, H. D.

Auger Neutralization of Ions at the Surface of a Diamond-Type Semiconductor, Monograph 3927.

HAGSTRUM, H. D.

Monolayer Adsorption and Bombardment Damage on Auger Electron Ejection from Germanium, Monograph 3950.

HAGSTRUM, H. D.

Oxygen Adsorption on Silicon and Germanium, Monograph 3968.

HEIDENREICH, R. D., see Burbank, R. D.

HELFAND, E.

Theory of the Molecular Friction Constant, Monograph 3936.

HIGHLEYMAN, W. H.

An Analog Method for Character Recognition, Monograph 4015.

HOPFIELD, J. J., and THOMAS, D. G.

Fine Structure and Magneto-Optic Effects in the Exciton Spectrum of Cadmium Sulfide, Monograph 3928.

HOWARD, R. E., see Boyle, W. S.

HUGGINS, C. M., see McCall, D. W.

HUMPHREY, F. B., see Barrett, W. A.

JACCARINO, V.

NMR and Conduction Electron Polarization in Rare-Earth Metals, Monograph 3914.

JACCARINO, V., see Burgiel, J. C.

KADOTA, T. T., and BOURNE, H. C., JR.

Stability Conditions of Pulse-Width-Modulated Systems through the Second Method of Lyapunov, Monograph 4013.

KADRI, F. V.

Control in Transistor Converter Circuits by Means of R-C Networks, Monograph 3915.

KAENEL, R. A.

High-Speed Analog-to-Digital Converters Utilizing Tunnel Diodes, Monograph 3951.

KAISER, W., GARRETT, C. G. B., and WOOD, D. L.

Fluorescence and Optical Maser Effects in $\text{CaF}_2 : \text{Sm}^{++}$, Monograph 4014.

KARLIK, S., see Schwartz, N.

KESSLER, J. E., see Garn, P. D.

KISLIUK, P. P.

Reflection of Slow Electrons from Tungsten Single Crystals, Monograph 3952.

KLAUDER, J. R.

Modification of Electron Energy Levels by Impurity Atoms, Monograph 3986.

KLÜVER, J. W.

Parametric Coupling between Transverse Waves on O- and M-Type Beams, Monograph 3953.

KOMETANI, T. Y.

Determination of Sodium Fluoride in Wood, Monograph 3998.

KOMPFNER, R., see Yariv, A.

KRAMER, H. P., BOGERT, B. P., and HAGELBARGER, D. W.

Stability of Pressure-Supported Molten Zones in Horizontal Sheets, Monograph 3954.

KUROKAWA, K.

Actual Noise Measure of Linear Amplifiers, Monograph 4003.

LAUDISE, R. A., and BALLMAN, A. A.

Solubility of Quartz under Hydrothermal Conditions, Monograph 4004.

LAX, M., and MENGERT, P.

Influence of Trapping, Diffusion and Recombination on Carrier Concentration Fluctuations, Monograph 3854.

LEE, C. Y.

An Algorithm for Path Connections and Its Applications, Monograph 4017.

LEE, C. Y.

Categorizing Automata by W-Machine Programs, Monograph 4005.

LEUTRITZ, J.

Determination of Moisture and Density for Assays of Oil-Type Preservatives, Monograph 3918.

LOGAN, B. F., see Schroeder, N. R.

LOGAN, R. A., AUGUSTYNIAK, W. M., and GILBERT, J. F.

Electron Bombardment Damage in Silicon Esaki Diodes, Monograph 3981.

McCALL, D. W., ANDERSON, E. W., and HUGGINS, C. M.

Self-Diffusion in Linear Dimethylsiloxanes, Monograph 3903.

McGEE, J. D., see Mims, W. B.

McLEAN, D. A., WEHE, H. G., and DANTE, B. T.

Polycarbonates as Capacitor Dielectrics, Monograph 3980.

McSKIMIN, H. J.

Measurement of Elastic Moduli by means of Ultrasonic Waves,
Monograph 3955.

McSKIMIN, H. J., see Bateman, T.

MACPHERSON, D. H., and YORK, R. K.

Semipermanent Storage by Capacitive Coupling, Monograph 4018.

MASON, W. P., see Bateman, T.

MATHEWS, M. V., see Speeth, S. D.

MATTHIAS, B. T., COMPTON, V. B., and CORENZWIT, E.

Some New Superconducting Compounds, Monograph 3793.

MEITZLER, A. H.

Mode Coupling Occurring in Propagation of Elastic Pulses in Wires,
Monograph 3956.

MENGERT, P., see Lax, M.

MIKULYAK, R. M., see Gershenzon, M.

MILLER, R. C., and SAVAGE, A.

Motion of 180° Domain Walls in BaTiO_3 under the Application of a Train of Voltage Pulses, Monograph 3957.

MIMS, W. B., NASSAU, K., and McGEE, J. D.

Spectral Diffusion in Electron Resonance Lines, Monograph 4027.

MINA, K. V., and NEWHALL, E. E.

Generating All Boolean Functions of N Variables Using a Single Magnetic Circuit, Monograph 3958.

MOORE, G. E.

Dissociation of Adsorbed CO by Slow Electrons, Monograph 3984.

MORRISON, J.

Behavior of Titanium in a High Vacuum, Monograph 3909.

MURRAY, A. A., see Chynoweth, A. G.

NASSAU, K., see Mims, W. B.

NEWHALL, E. E., see Mina, K. V.

NICOLLIAN, E. H.

A Laboratory Leak Detector Using an Omegatron, Monograph 3923.

PAPPALARDO, R.

Absorption Spectra of Cu^{2+} in Different Crystal Coordinations, Monograph 3983.

PAPPALARDO, R., and DIETZ, R. E.

Absorption Spectra of Transition Ions in CdS Crystals, Monograph 4006.

PAPPALARDO, R.

Cubic Wave Functions for J Half-Integer, Monograph 3959.

PETER, M., see Sugano, S.

PFÄHN, A.

Aging of Electronic Phosphors in Cathode Ray Tubes, Monograph 3989.

PIERCE, J. R.

Considerations in Analysis and Behavior of Wave Phenomena in Electron Beams, Monograph 3910.

PIKSI, A. H., see Schawlow, A. L.

PLATZMAN, P. M., and BUCHSBAUM, S. J.

Effect of Collisions on the Landau Damping of Plasma Oscillations, Monograph 4039.

POLLAK, H. O.

Energy Distribution of Band-Limited Functions Whose Samples on a Half Line Vanish, Monograph 3924.

POLLAK, M. and GEBALLE, T. H.

Low-Frequency Conductivity Due to Hopping Processes in Silicon,
Monograph 3960.

RAISBECK, G.

An Optimum Shape for Fairing the Edge of an Electrode, Monograph
3879.

REMEIKA, J. P., see Geschwind, S.

ROSENTHAL, C. W.

Computing Machine Aids to a Development Project, Monograph 4019.

ROY, A. S.

**New Falling Velocity Method of Density Determination for Small
Solid Samples,** Monograph 4007.

RUFF, J. A., see Barrett, W. A.

SAVAGE, A., see Miller, R. C.

SCHAWLOW, A. L.

Infrared and Optical Masers, Monograph 3933.

SCHAWLOW, A. L., PIKSI, A. H., and SUGANO, S.

**Strain-Induced Effects on the Degenerate Spectral Line of Chromium
in MgO Crystals,** Monograph 3961.

SCHAWLOW, A. L., see BURGIEL, J. C.

SCHROEDER, M. R., and LOGAN, B. F.

Improved Quasi-Sterophony and Colorless Artificial Reverberation,
Monograph 3996.

SCHWARTZ, N., GRESH, M., and KARLIK, S.

Niobium Solid Electrolytic Capacitors, Monograph 3985.

SELWOOD, P. W., see Dietz, R. E.

SHERWOOD, R. C., see Geller, S.

SPEETH, S. D.

Seismometer Sounds, Monograph 3999.

SPEETH, S. D., and MATHEWS, M. V.

Sequential Effects in the Signal-Detection Situation, Monograph 4008.

SPITZER, W. G., WERNICK, J. H., and WOLFE, R.

Electrical and Optical Properties of CdSnAs_2 , Monograph 3917.

STADLER, H. L., see Barrett, W. A.

STONE, H. A., JR., and WARNER, R. M.

The Field-Effect Tetrode, Monograph 3991.

SUGANO, S., and PETER, M.

Effect of Configuration Mixing and Covalency on the Energy Spectrum of Ruby, Monograph 3962.

SUGANO, S., see Schawlow, A. L.

TANG, C. C. H.

Optimization of Waveguide Tapers Capable of Multimode Propagation, Monograph 4029.

TANNENBAUM, E.

Detailed Analysis of Thin Phosphorous-Diffused Layers in P-Type Silicon, Monograph 3925.

THEUERER, H. C.

Epitaxial Silicon Films by the Hydrogen Reduction of SiCl_4 , Monograph 3963.

THOMAS, D. G., see Hopfield, J. J.

TIEN, P. K.

Noise in Parametric Amplifiers, Monograph 4009.

VON ROOSBROECK, W.

Current-Carrier Transport with Space Charge in Semiconductors, Monograph 3997.

WARNER, R. M., see Stone, H. A., Jr.

WEHE, H. G., see McLean, D. A.

WERNICK, J. H., see Bozorth, R. M.

WERNICK, J. H., see Spitzer, W. G.

WERNICK, J. H., see Wertheim, G. K.

WERTHEIM, G. K.

Mossbauer Effect: Applications to Magnetism, Monograph 3916.

WERTHEIM, G. K. and WERNICK, J. H.

Fe⁵⁷ Mossbauer Effect in Cu-Ni Alloys, Monograph 4010.

WERTHEIM, G. K., see Alff, C.

WILK, M. B., and GNANADESIKAN, G.

Graphical Analysis of Multi-Response Experimental Data Using Ordered Distances, Monograph 4011.

WILLIAMS, H. J., see Geller, S.

WILLIAMS, W. H.

Generating Unbiased Ratio and Regression Estimators, Monograph 3965.

WOLFE, R., see Spitzer, W. G.

WOLFF, P. A., see Bozorth, R. M.

WOOD, D. L., see Kaiser, W.

YARIV, A., and KOMPNER, R.

Noise Temperature in Distributed Amplifiers, Monograph 3966.

YORK, R. K., see MacPherson, D. H.

May, 1962

**Recent Monographs of Bell System
Technical Papers**

Copies of these monographs may be obtained on request to the Public Relations and Publication Division, Bell Telephone Laboratories, Inc., 463 West Street, New York 14, N. Y. The numbers of the monographs should be given in all requests.

Numerical Index of Recent Monographs of Bell System Technical Papers*

- 3967** Batterman, B. W., *Imaginary Part of X-Ray Scattering Factor for Germanium*, J. Appl. Phys., 32, pp. 998-1001, June 1961.
- 3969** Cook, J. S., Louisell, W. H. and Quate, C. F., *Space-Charge Wave Parametric Amplifiers*, J. of Electronics and Control, 8, pp. 1-18, Jan. 1960.
- 3980** McLean, D. A., Wehe, H. G. and Dante, B. T., *Polycarbonates as Capacitor Dielectrics*, I.R.E. Trans. on Component Parts, CP-8, pp. 89-93, June 1961.
- 3981** Logan, R. A., Augustyniak, W. M. and Gilbert, J. F., *Electron Bombardment Damage in Silicon Esaki Diodes*, J. Appl. Phys., 32, pp. 1201-1205, July 1961.
- 3982** Nesbitt, E. A. and Gyorgy, E. M., *Two-Phase Permalloy for High-Speed Switching*, J. Appl. Phys., 32, pp. 1305-1308, July 1961.
- 3983** Pappalardo, R., *Absorption Spectra of Cu^{2+} in Different Crystal Coordinations*, J. Molecular Spectroscopy, 6, pp. 554-571, June 1961.
- 3984** Moore, G. E., *Disassociation of Adsorbed CO by Slow Electrons*, J. Appl. Phys., 32, pp. 1241-1251, July 1961.
- 3985** Schwartz, N., Gresh, M. and Karlik, S., *Niobium Solid Electrolytic Capacitors*, J. Electrochemical Soc., 108, pp. 750-758, Aug. 1961.
- 3986** Klauder, J. R., *Modification of Electron Energy Levels by Impurity Atoms*, Annals of Phys., 14, pp. 43-76, July 1961.
- 3987** Gershenson, M. and Mikulyak, R. M., *Electroluminescence at p-n Junctions in Gallium Phosphide*, J. Appl. Phys., 32, pp. 1338-1348, July 1961.
- 3988** Ahearn, A. J., *Mass Spectrographic Analysis of Insulators*, J. Appl. Phys., 32, pp. 1195-1197, July 1961.
- 3989** Pfahnl, A., *Aging of Electronic Phosphors in Cathode Ray Tubes*, Advances in Electron Tube Techniques, 5, pp. 204-208, 1961.
- 3990** Ahearn, A. J., *Mass Spectrographic Detection of Impurities in Liquids*, J. Appl. Phys., 32, pp. 1197-1200, July 1961.
- 3991** Stone, H. A., Jr., and Warner, R. M., *The Field-Effect Tetrode*, Proc. of the I.R.E., 49, pp. 1170-1183, July 1961.
- 3992** Garn, P. D., *Thermal Analysis—A Critique*, Analytical Chem., 33, pp. 1247-1251, Aug. 1961.
- 3993** David, E. E., Jr., *The Reproduction of Sound*, Scientific American, 204, pp. 72-84, Aug. 1961.
- 3994** Dietz, R. E. and Selwood, P. W., *Effect of Chemisorbed Hydrogen on the Magnetization of Nickel*, J. Chem. Phys., 35, pp. 270-281, July 1961.
- 3995** Douglass, D. C., *Self-Diffusion*

* This listing covers monographs 3967 through 4169 but does not include monographs of articles published in the Bell System Technical Journal.

- and. *Velocity Correlation*, J. Chem. Phys., **35**, pp. 81-90, July 1961.
- 3996 Schroeder, M. R. and Logan, B. F., *Improved Quasi-Stereophony and Colorless Artificial Reverberation*, Pt. 1, J. Acoustical Soc. America, **33**, pp. 1061-1064, Aug. 1961, Pt. 2, J. Audio Engr. Soc., **9**, pp. 192-197, July 1961.
- 3997 von Roosbroeck, W., *Current-Carrier Transport with Space Charge in Semiconductors*, Phys. Rev., **123**, pp. 474-490, July 15, 1961.
- 3998 Kometani, T. Y., *Determination of Sodium Fluoride in Wood*, Proc. of the American Wood-Preservers Assoc., **57**, pp. 176-179, 1961.
- 3999 Speeth, S. D., *Seismometer Sounds*, J. Acoustical Soc. of America, **33**, pp. 909-916, July 1961.
- 4001 Basseches, H., *Oxidation of Sputtered Tantalum Films*, I.R.E. Trans. on Component Parts, CP-8, pp. 51-56, June 1961.
- 4002 Chynoweth, A. G. and Murray, A. A., *Pinch Effect in Indium Antimonide*, Phys. Rev., **123**, pp. 515-520, July 15, 1961.
- 4003 Kurokawa, K., *Actual Noise Measure of Linear Amplifiers*, Proc. of I.R.E., **49**, pp. 1391-1397, Sept. 1961.
- 4004 Laudise, R. A. and Ballman, A. A., *Solubility of Quartz under Hydrothermal Conditions*, J. Phys. Chem., **65**, pp. 1396-1400, Aug. 1961.
- 4005 Lee, C. Y., *Categorizing Automata by W-Machine Programs*, J. of the Assoc. for Computing Machinery, **8**, pp. 384-399, July 1961.
- 4006 Pappalardo, R. and Dietz, R. E., *Absorption Spectra of Transition Ions in CdS Crystals*, Phys. Rev., **123**, pp. 1188-1203, Aug. 15, 1961.
- 4007 Roy, A. S., *New Falling Velocity Method of Density Determination for Small Solid Samples*, Analytical Chem., **33**, pp. 1426-1428, Sept. 1961.
- 4008 Speeth, S. D. and Mathews, M. V., *Sequential Effects in the Signal-Detection Situation*, J. Acoustical Soc. of America, **33**, pp. 1046-1054, Aug. 1961.
- 4009 Tien, P. K., *Noise in Parametric Amplifiers*, Acta Electronica, **4**, pp. 424-446, July 1960.
- 4010 Wertheim, G. K. and Wernick, J. H., *Fe^{57} Mossbauer Effect in Cu-Ni Alloys*, Phys. Rev., **123**, pp. 755-757, Aug. 1, 1961.
- 4011 Wilk, M. B. and Gnanadesikan, G., *Graphical Analysis of Multi-Response Experimental Data using Ordered Distances*, Proc. of the National Academy of Sciences, **47**, pp. 1209-1212, August 1961.
- 4012 Barrett, W. A., Humphrey, F. B., Ruff, J. A. and Stadler, H. L., *A Card-Changeable Permanent Magnet Twistor Memory of Large Capacity*, I.R.E. Trans. on Electronic Computers, EC-10, pp. 451-461, Sept. 1961.
- 4013 Kadota, T. T. and Bourne, H. C., Jr., *Stability Conditions of Pulse-Width-Modulated Systems through the Second Method of Lyapunov*, I.R.E. Trans. on Automatic Control, AC-6, pp. 266-276, Sept. 1961.
- 4014 Kaiser, W., Garrett, C. G. B. and Wood, D. L., *Fluorescence and Optical Maser Effects in $CaF_2 Sm^{++}$* , Phys. Rev., **123**, p. 766-776, Aug. 1, 1961.
- 4015 Highleyman, W. H., *An Analog Method for Character Recognition*, I.R.E. Trans. on Electronic Computers, EC-10, pp. 502-512, Sept. 1961.
- 4016 Kunzler, J. E., *Superconductivity in High Magnetic Fields at High Current Densities*, Rev. of Modern Phys., **33**, pp. 1-9, Oct. 1961.
- 4017 Lee, C. Y., *An Algorithm for Path Connections and Its Applications*, I.R.E. Trans. on Electronic Computers, EC-10, pp. 346-365, Sept. 1961.
- 4018 MacPherson, D. H. and York, R. K., *Semipermanent Storage by*

- Capacitive Coupling*, I.R.E. Trans. on Electronic Computers, EC-10, pp. 446-451, Sept. 1961.
- 4019 Rosenthal, C. W., *Computing Machine Aids to a Development Project*, I.R.E. Trans. on Electronic Computers, EC-10, pp. 400-406, Sept. 1961.
- 4020 Frisch, H. L. and Lebowitz, J. L., *Electron Transport at High Temperatures in the Presence of Impurities*, Phys. Rev., 123, pp. 1542-1549, Sept. 1, 1961.
- 4021 Geller, S., Williams, H. J. and Sherwood, R. C., *Magnetic and Crystallographic Study of Nd-substituted Y and Gd Fe Garnets*, Phys. Rev., 123, pp. 1692-1699, Sept. 1, 1961.
- 4022 Riesz, R. P. and Bjorling, C. G., *Sample Preparation for Transmission Electron Microscopy of Germanium*, Rev. of Scientific Instruments, 32, pp. 889-891, Aug. 1961.
- 4023 Herriott, D. R., *Multiple-Wavelength, Multiple-Beam Interferometric Observation of Flat Surfaces*, J. of the Optical Soc. of Amer., 51, pp. 1142-1145, Oct. 1961.
- 4025 Lax, M. and Hopfield, J. J., *Selection Rules Connecting Different Points in the Brillouin Zone*, Phys. Rev., 124, pp. 115-123, Oct. 1, 1961.
- 4026 Anderson, P. W. and Morel, P., *Generalized Bardeen-Cooper-Schrieffer States and Low-Temperature Phase of He³*, Phys. Rev., 123, pp. 1911-1934, Sept. 15, 1961.
- 4027 Mims, W. B., Nassau, K. and McGee, J. D., *Spectral Diffusion in Electron Resonance Lines*, Phys. Rev., 123, pp. 2059-2069, Sept. 15, 1961.
- 4028 Frisch, H. L., *Time Lag in Thermalization of a Fast Ion in a Plasma*, Phys. of Fluids, 4, pp. 1167-1171, Sept. 1961.
- 4029 Tang, C. C. H., *Optimization of Waveguide Tapers Capable of Multimode Propagation*, I.R.E. Trans. on Microwave Theory and Tech., MTT-9, pp. 442-452, Sept. 1961.
- 4030 Frisch, H. L. and Wasserman, E., *Chemical Topology*, J. Amer. Chem. Soc., 83, pp. 3789-3795, Sept. 20, 1961.
- 4031 Uenohara, M., *Extremely Low-Noise Variable Capacitance Parametric Amplifier*, Nachrichtentechnische Fachberichte, Band 22, pp. 334-337, 1961.
- 4032 Caldwell, C. W., *Thermionic Emission vs. Carbon Diffusion in Nickel-Based Oxide Cathodes*, Proc. of Fifth Natl. Tube Tech. Conf.-1960, pp. 12-1 to 12-6.
- 4033 Cutler, C. C., *Radio Communication by Means of Satellites*, The Planetary and Space Science J., 7, pp. 254-271, July 1961.
- 4034 Gupta, S. S., *Percentage Points and Modes of Order Statistics from the Normal Distribution*, Annals of Math. Statistics, 32, pp. 888-893, Sept. 1961.
- 4035 Hagstrum, H. D., *Reflection of Noble Gas Ions at Solid Surfaces*, Phys. Rev., 123, pp. 758-765, Aug. 1, 1961.
- 4036 Hannay, N. B., *Mass Spectrographic Analysis of Solids*, Science, 134, pp. 1220-1225, Oct. 20, 1961.
- 4037 Jaccodine, R. J., *Study of Devitrification of Lithium Glass*, J. Amer. Ceramic Soc., 44, pp. 472-475, Oct. 1961.
- 4038 Melzak, Z. A., *Plane Motion with Curvature Limitations*, J. of the Soc. for Industrial and Appl. Math., 9, pp. 422-432, Sept. 1961.
- 4039 Platzman, P. M. and Buchsbaum, S. J., *Effect of Collisions on the Landau Damping of Plasma Oscillations*, Phys. of Fluids, 4, pp. 1288-1292, Oct. 1961.
- 4040 Singer, F. J., *Compatibility in Communications*, Electrical Engineering, 81, pp. 94-99, Feb. 1962.
- 4041 Yafet, Y., *Hyperfine Interaction Due to Orbital Magnetic Moment of*

- Electrons with Large g Factors*, Phys. and Chem. of Solids, **21**, pp. 99-104, Oct. 1961.
- 4042 Goldey, J. M., Mackintosh, I. M. and Ross, I. M., *Turn-Off Gain in p-n-p-n Triodes*, Solid State Electronics, **2**, pp. 119-122, Mar. 1961.
- 4043 Smits, F. M., Smith, K. D. and Brown, W. L., *Solar Cells for Communication Satellites in the Van Allen Belt*, The J. of the British Institution of Radio Engineers, **22**, pp. 161-169, Aug. 1961.
- 4044 Kisliuk, P. and Boyle, W. S., *Pulsed Ruby Maser as a Light Amplifier*, Proc. of I.R.E., **49**, pp. 1635-1639, Nov. 1961.
- 4045 Olson, H. J. and Von Ohlsen, L. H., *Coaxial Magnetron*, Electronics, **35**, pp. 78-80, Nov. 10, 1961.
- 4046 Luongo, J. P., *Chemical Structure by Absorption Spectroscopy*, Analytical Chem., **33**, pp. 1816-1823, Dec. 1961.
- 4047 Hopfield, J. J., *Exciton States and Band Structure in CdS and CdSe*, J. Appl. Phys., **32**, pp. 2277-2281, Oct. 1961. (Supplement)
- 4048 Dietz, R. E., Hopfield, J. J. and Thomas, D. G., *Excitons and the Absorption Edge of ZnO*, J. Appl. Phys., **32**, pp. 2282-2286, Oct. 1961, (Suppl.)
- 4049 Haase, O. and Heidenreich, R. D., *"Anomalous" Electron Double Diffraction*, J. Appl. Phys., **32**, pp. 1840-1843, Oct. 1961.
- 4050 Hutson, A. R., *Piezoelectric Scattering and Phonon Drag in ZnO and CdS*, J. Appl. Phys., **32**, pp. 2287-2292, Oct. 1961 (Suppl.)
- 4051 Collins, C. A. and Williams, A. D., *Noise and Intermodulation Problems in Multichannel Closed-Circuit Television*, A.I.E.E. Trans., Pt. 1, No. 57, pp. 486-491, Nov. 1961.
- 4052 Kirby, D. B. and Rosenthal, C. W., *Computer Program for Preparing Wiring Diagrams*, A.I.E.E. Trans., Pt. 1, No. 57, pp. 509-513, Nov. 1961.
- 4053 Klein, D. L. and D'Stefan, D. J., *Controlled Etching of Silicon in the HF-HNO₃ System*, J. of the Electrochemical Soc., **109**, pp. 37-42, Jan. 1962.
- 4054 Thomas, D. G., *Excitons and Band Splitting Produced by Uniaxial Stress in CdTe*, J. Appl. Phys., **32**, pp. 2298-2304, Oct. 1961, (Suppl.)
- 4055 Spitzer, W. G., Trumbore, F. A. and Logan, R. A., *Properties of Heavily Doped n-Type Germanium*, J. Appl. Phys., **32**, pp. 1822-1830, Oct. 1961.
- 4056 Pfann, W. G. and Thurston, R. N., *Semiconducting Stress Transducers using Transverse and Shear Piezoresistance*, J. Appl. Phys., **32**, pp. 2008-2019, Oct. 1961.
- 4057 Matsuoka, S., *Hypothesis of Voids in Semicrystalline Polymers*, J. Appl. Phys., **32**, pp. 2334-2336, Nov. 1961.
- 4058 Flanagan, J. L., *Audibility of Periodic Pulses and a Model for the Threshold*, J. Acoustical Soc. of Amer., **33**, pp. 1540-1549, Nov. 1961.
- 4059 Wolff, P. A., *Localized Moments in Metals*, Phys. Rev., **124**, pp. 1030-1035, Nov. 15, 1961.
- 4060 Slichter, W. P., *Molecular Motion in Disordered Regions of Solid Polyethylene*, J. Appl. Phys., **32**, pp. 2339-2343, Nov. 1961.
- 4061 Stillinger, F. H., Jr., *Interfacial Solutions of the Poisson-Boltzmann Equations*, J. Chem. Phys., **35**, pp. 1584-1589, Nov. 1961.
- 4062 Wolf, W. P. and Bozorth, R. M., *Susceptibility of Gadolinium Iron Garnet below the Neel Point*, Phys. Rev., **124**, pp. 449-452, Oct. 15, 1961.
- 4063 Stillinger, F. H., Jr., *Compressibility of Simple Fused Salts*, J. Chem. Phys., **35**, pp. 1581-1583, Nov. 1961.
- 4064 Wilson, D. K. and Feher, G., *Electron Spin Resonance Experi-*

- ments on Donors in Silicon, Phys. Rev., 124, pp. 1068-1083, Nov. 15, 1961.
- 4065 Wertheim, G. K., *Hyperfine Structure of Divalent and Trivalent Fe⁵⁷ in Cobalt Oxide*, Phys. Rev., 124, pp. 764-767, Nov. 1, 1961.
- 4066 Thomas, D. G. and Hopfield, J. J., *A Magneto-Stark Effect and Exciton Motion in CdS*, Phys. Rev., 124, pp. 657-665, Nov. 1, 1961.
- 4067 Bogert, B. P., *Seismic Data Collection, Reduction, and Digitization*, Bulletin of the Seismological Soc. of Amer., 51, pp. 515-525, Oct. 1961.
- 4068 Uenohara, M. and Wolfe, R., *Parametric Amplifier with Thermoelectric Refrigeration*, I.R.E. Trans. on Electron Devices, ED-8, pp. 521-524, Nov. 1961.
- 4069 Bogert, B. P., *Transfer Function of a Short-Period Vertical Seismograph*, Bulletin of the Seismological Soc. of Amer., 51, pp. 503-513, Oct. 1961.
- 4070 Geller, S., *Parameter Interaction in Least Squares Structure Refinement*, Acta Crystallographica, 14, pp. 1026-1035, Oct. 10, 1961.
- 4071 Dillon, J. F., Jr., and Walker, L. R., *Ferrimagnetic Resonance in Rare-Earth Doped Yttrium Iron Garnet*, Phys. Rev., 124, pp. 1401-1413, Dec. 1, 1961.
- 4072 Gilbert, E. N. and Riordan, J., *Symmetry Types of Periodic Sequences*, Ill. J. of Math., 5, pp. 657, 665, Dec. 1961.
- 4073 Gupta, S. S. and Groll, P. A., *Gamma Distribution in Acceptance Sampling Based on Life Tests*, J. Amer. Statistical Assoc., 56, pp. 942-970, Dec. 1961.
- 4074 Barnes, C. E., *Broadband Isolators and Variable Attenuators for Millimeter Wavelengths*, I.R.E. Trans. on Microwave Theory and Techniques, MTT-9, pp. 519-523, Nov. 1961.
- 4075 Buchsbaum, S. J. and Galt, J. K., *Alfven Waves in Solid-State Plasmas*, Phys. of Fluids, 4, pp. 1514-1516, Dec. 1961.
- 4076 Courtney-Pratt, J. S., *Some Unconventional Methods of High-Speed Photography*, Proc. of the Fifth International Congress on High-Speed Photography-1962, p. 197-226.
- 4077 James, D. B. and Vaughan, H. E., *ESSEX—A Continuing Research Experiment in Time-Separation Communication*, Proc. of the Institution of Electrical Engineers, 107, Pt.B, Suppl. 20, pp. 330-335, Nov. 1960.
- 4078 Ligenza, J. R., *Oxidation of Silicon by High-Pressure Steam*, J. of the Electrochem. Soc., 109, pp. 73-76, Feb. 1962.
- 4079 Kuebler, N. A. and Nelson, L. S., *Radiant Energies and Irradiances of Capacitor Discharge Lamps*, J. Optical Soc. of Amer., 51, pp. 1411-1416, Dec. 1961.
- 4080 Garrett, C. G. B., Kaiser, W. and Bond, W. L., *Stimulated Emission into Optical Whispering Modes of Spheres*, Phys. Rev., 124, pp. 1807-1809, Dec. 15, 1961.
- 4081 Louisell, W. H., Yariv, A. and Siegman, A. E., *Quantum Fluctuations and Noise in Parametric Processes*, Phys. Rev., 124, pp. 1646-1654, Dec. 15, 1961.
- 4082 Enloe, L. H., *Decreasing the Threshold in FM by Frequency Feedback*, Proc. I.R.E., 50, pp. 18-30, Jan. 1962.
- 4083 Bugbee, L. F., Jr., *A Tone Disabler for Bell System 1A Echo Suppressors*, A.I.E.E. Trans., Pt.1, No. 58, pp. 596-600, Jan. 1962.
- 4084 Kisliuk, P. and Walsh, D. J., *Interference Between Beams from the Opposite Ends of a Ruby Optical Maser*, Appl. Optics, 1, pp. 45-49, Jan. 1962.
- 4104 Myers, G. H. and Thompson,

- T. H., *Guidance of Tiros I*, ARS J1, 31, pp. 636-640, May 1961.
- 4105 Kleinman, D. A. and Spitzer, W. G., *Theory of the Optical Properties of Quartz in the Infrared*, Phys. Rev., 125, pp. 16-30, Jan. 1, 1962.
- 4106 Helms, H. D. and Thomas, J. B., *Truncation Error of Sampling-Theorem Expansions*, Proc. of I.R.E., 50, pp. 179-184, Feb. 1962.
- 4107 Caputo, S. and Highleyman, W. H., *Variable-Frequency Sinusoidal Oscillators Using a Single Active Element*, Proc. I.R.E., 50, pp. 162-170, Feb. 1962.
- 4108 Devlin, G. E., McKenna, J., May, A. D. and Schawlow, A. L., *Composite Rod Optical Masers*, Appl. Optics, 1, pp. 11-16, Jan. 1962.
- 4109 Bennett, W. R. and Froehlich, F. E., *Comparing Modulation Methods for Data Transmission over Telephone Channels*, I.R.E. Trans. on Communications Systems, CS-9, pp. 239-243, Sept. 1961.
- 4110 Sipress, J. M., *Synthesis of Active RC Networks*, I.R.E. Trans. on Circuit Theory, CT-8, pp. 260-269, Sept. 1961.
- 4111 Dunn, H. K., *Methods of Measuring Vowel Formant Bandwidths*, J. Acoustical Soc. of Amer., 33, pp. 1737-1746, Dec. 1961.
- 4112 Link, G. L., *Motion of c Domain Centers in BaTiO_3* , J. Appl. Phys., 32, pp. 2566-2573, Dec. 1961.
- 4113 Pierce, J. R., *Momentum and Energy of Waves*, J. Appl. Phys., 32, pp. 2580-2584, Dec. 1961.
- 4114 Snyder, L. C., *Hückel Molecular Orbital Computations to Describe the Benzidine Rearrangement*, J. Amer. Chem. Soc., 84, pp. 340-347, Feb. 5, 1962.
- 4115 Herriott, D. R., *Optical Properties of a Continuous Helium-Neon Optical Maser*, J. Optical Soc. of Amer., 52, pp. 31-37, Jan. 1962.
- 4116 Hauser, J. J. and Buehler, E., *Effect of Plastic Deformation and Annealing Temperature on Superconducting Properties*, Phys. Rev., 125, pp. 142-148, Jan. 1, 1962.
- 4117 Flanagan, J. L. and Bird, C. M., *Minimum Phase Responses for the Basilar Membrane*, J. Acoustical Soc. of Amer., 34, pp. 114-118, Jan. 1962.
- 4118 Mason, W. P., *Semiconductor Devices as Pressure Transducers*, Electronics, 35, pp. 35-39, Feb. 23, 1962.
- 4119 Abrahams, S. C. and Prince, E., *Crystal and Magnetic Structure of Cupric Fluoride Dihydrate*, J. Chem. Phys., 36, pp. 50-61, Jan. 1962.
- 4120 Beneš, V. E., *A "Renewal" Limit Theorem for General Stochastic Processes*, Annals of Mathematical Statistics, 33, pp. 98-113, Mar. 1962.
- 4121 Gilbert, E. N., *Random Plane Networks*, J. Soc. for Industrial and Appl. Math., 9, pp. 533-543, Dec. 1961.
- 4123 Kinariwala, B. K., *The Esaki Diode as a Network Element*, I.R.E. Trans. on Circuit Theory, CT-8, pp. 389-397, Dec. 1961.
- 4124 Nielsen, J. W., Linares, R. C. and Koonce, S. E., *Genesis of the Barium Titanate Butterfly Twin*, J. Amer. Ceramic Soc., 45, pp. 12-17, Jan. 1962.
- 4125 Olmstead, P. S., *Statistical Evaluation*, Industrial Quality Control, 18, pp. 9-13, Feb. 1962.
- 4126 Pappalardo, R., Wood, D. L. and Linares, R. C., Jr., *Optical Absorption Spectra of Doped Oxide Systems*, M. Chem. Phys., 35, Pt. 1, Oct. 1961, pp. 1460-1478, Pt. 2, Dec. 1961, pp. 2041-2059.
- 4127 Tukey, J. W., *Keeping Research in Contact with the Literature: Citation Indices and Beyond*, J. Chem. Documentation, 2, pp. 34-37, Jan. 1962.
- 4128 Raisbeck, G., *Optimal Lumped Loading with Four-Terminal Networks*, Electronic Technology, 38, pp. 437-440, Dec. 1961.

- 4129 Schroeder, M. R. and Kuttruff, K. H., *On Frequency Response Curves in Rooms*, J. Acous. Soc. of Amer., **34**, pp. 76-80, Jan. 1962.
- 4130 Tukey, J. W., *The Future of Data Analysis*, Annals of Math. Statistics, **33**, pp. 1-67, Mar. 1962.
- 4131 Walrafen, G. E., *Raman Spectral Studies of Aqueous Solutions of Selenious Acid*, J. Chem. Phys., **36**, pp. 90-93, Jan. 1962.
- 4132 Wilk, M. B., Gnanadesikan, R. and Huyett, M. J., *Probability Plots for the Gamma Distribution*, Technometrics, **4**, pp. 1-20, Feb. 1962.
- 4133 Zajac, E. E., *Deflection and Buckling of a Beam-Column with a One-Sided Constraint*, Zeitschrift Fur Angewandte Mathematik Und Physik, **12**, pp. 536-546, 1961.
- 4134 Harmon, L. D., Van Bergeijk, W. A. and Levinson, J., *Studies with Artificial Neurons*, Kybernetik, **1**, pp. 89-117, Dec. 1961.
- 4135 Liehr, A. D., *Semiempirical Theory of Vibronic Interactions in some Conjugated Hydrocarbons*, Rev. of Modern Phys., **32**, pp. 436-439, April 1960.
- 4136 Koontz, D. E., Biondi, F. J., Helmke, G., Hayes, J. S., Feder, D. O., Jacob, E. S., Howden, W. E., Huff, D. R., Richards, J. W., Thomas, C. O., Craft, W. H., Maurer, D. W. and Frost, H. B., *Materials and Electron-Device Processing*, A.S.T.M. Special Tech. Publication No. 300.
- 4137 David, E. E., Jr. and Schodder, G. R., *Pitch Discrimination of Complex Sounds*, Proc. Third International Congress on Acous., pp. 106-109, 1959.
- 4138 DeMonte, R. W., *Synthesis of Networks Simulating Impedance of Loaded Cable Facilities*, A.I.E.E. Trans., Pt. 1, **58**, pp. 623-627, Jan. 1962.
- 4139 Baker, W. E. and Froehlich, F. E., *A Buffer Store for Data Transmission*, A.I.E.E. Trans., Pt. 1, **58**, pp. 566-570, Jan. 1962.
- 4140 Andrews, F. T., Jr., *Data System Tests Using Simulated Transmission Impairments*, A.I.E.E. Trans., Pt. 1, **58**, pp. 590-596, Jan. 1962.
- 4141 Liehr, A. D., *A Comparison of Theories: Molecular Orbital, Valence Bond, and Ligand Field*, J. Chem. Education, **39**, pp. 135-139, Mar. 1962.
- 4142 Cowell, W. R. and Burton, H. O., *Computer Simulation of Use of Group Codes with Retransmission on a Gilbert Burst Channel*, A.I.E.E. Trans., Pt. 1, **58**, pp. 577-585, Jan. 1962.
- 4150 Knox, K. and Mitchell, D. W., *Preparation and Structure of K_2NaCrF_6 , K_2NaFeF_6 and K_2NaGaF_6* , J. Inorganic and Nuclear Chem., **21**, pp. 253-258, Dec. 1961.
- 4151 McSkimin, H. J. and Thomas, D. G., *Elastic Moduli of Cadmium Telluride*, J. Appl. Phys., **33**, pp. 56-59, Jan. 1962.
- 4152 Schawlow, A. L., *Fine-Line Spectra of Chromium Ions in Crystals*, J. Appl. Phys., (Suppl.), **33**, pp. 395-398, Jan. 1962.
- 4153 Sugano, S., *Recent Progress of Crystal Field Theory*, J. Appl. Phys., (Suppl.), **33**, pp. 303-306, Jan. 1962.
- 4154 Van Uitert, L. H. and Soden, R. R., *Influence of Ion Size upon Intensity of Eu^{3+} Fluorescence in the Tungstates*, J. Chem. Phys., **36**, pp. 517-519, Jan. 15, 1962.
- 4155 Yariv, A. and Louisell, W. H., *Transition Probability Due to Random Perturbations*, Phys. Rev., **125**, pp. 558-560, Jan. 15, 1962.
- 4156 Brainard, R. C., Kammerer, F. W. and Kimme, E. G., *Subjective Effects of Noise in Low-Resolution Television Systems*, I.R.E. Trans. on Information Theory, IT-8, pp. 99-106, Feb. 1962.
- 4157 Chynoweth, A. G., Logan, R. A.

- and Thomas, D. E., *Phonon-Assisted Tunneling in Silicon and Germanium Esaki Junctions*, Phys. Rev., **125**, pp. 877-881, Feb. 1, 1962.
- 4158 Graham, R. E., *Snow Removal—A Noise-Stripping Process for Picture Signals*, I.R.E. Trans. on Information Theory, IT-8, pp. 129-144, Feb. 1962.
- 4159 Harmon, L. D., Levinson, J. and van Bergeijk, W. A., *Analog Models of Neural Mechanism*, I.R.E. Trans. on Information Theory, IT-8, pp. 107-112, Feb. 1962.
- 4160 Hobstetter, J. N. and Renton, C. A., *Point Defects in p-Type Ge by Deformation, Quenching, and Electron Bombardment*, J. Appl. Phys., **33**, pp. 600-605, Feb. 1962.
- 4161 Julesz, B., *Visual Pattern Discrimination*, I.R.E. Trans. on Information Theory, IT-8, pp. 84-92, Feb. 1962.
- 4162 Kane, E. O., *Spectral Moments and Continuum Perturbation Theory*, Phys. Rev., **125**, 1094-1099, Feb. 1, 1962.
- 4163 Klauder, J. R. and Anderson, P. W., *Spectral Diffusion Decay in Spin Resonance Experiments*, Phys. Rev., **125**, pp. 912-932, Feb. 1, 1962.
- 4164 Morel, P. and Anderson, P. W., *Superconducting State Parameters with Retarded Electron-Phonon Interaction*, Phys. Rev., **125**, pp. 1263-1271, Feb. 15, 1962.
- 4165 Sikorski, M. E. and Andreatch, P., Jr., *Tunnel Diode Hydrostatic Pressure Transducer*, Rev. Scientific Instruments, **33**, pp. 155-160, Feb. 1962.
- 4166 Treves, D., *Magnetic Studies of Some Orthoferrites*, Phys. Rev., **125**, pp. 1843-1853, Mar. 15, 1962.
- 4167 Van Uitert, L. G., Linares, R. C., Soden, R. R. and Ballman, A. A., *f-Orbital Electron Wave Function Mixing in Concentration Quenching of Eu^{3+}* , J. Chem. Phys., **36**, pp. 702-705, Feb. 1, 1962.
- 4168 Walrafen, G. E., *Raman Spectral Studies of the Effects of Electrolytes on Water*, J. Chem. Phys., **36**, pp. 1035-1042, Feb. 1962.
- 4169 Wolff, P. A., Anderson, P. W., Clogston, A. M., Matthias, B. T., Peter, M. and Williams, H. J., *Magnetization of Localized State in Metals*, J. Appl. Phys., (Suppl.), **33**, pp. 1173-1177, Mar. 1962.

Index of Authors of Recent Monographs of Bell System Technical Papers

ABRAHAM, S. C., and PRINCE, E.

Crystal and Magnetic Structure of Cupric Fluoride Dihydrate, Monograph 4119.

AHEARN, A. J.

Mass Spectrographic Detection of Impurities in Liquids, Monograph 3990.

AHEARN, A. J.

Mass Spectrographic Analysis of Insulators, Monograph 3988.

ANDERSON, P. W., and MOREL, P.

Generalized Bardeen-Cooper-Schrieffer States and Low-Temperature Phase of He³, Monograph 4026.

ANDERSON, P. W., see Klauder, J. R.

ANDERSON, P. W., see Morel, P.

ANDERSON, P. W., see Wolff, P. A.

ANDREATCH, P., JR., see Sikorski, M. E.

ANDREWS, F. T., JR.

Data System Tests Using Simulated Transmission Impairments, Monograph 4140.

AUGUSTYNIAK, W. M., see Logan, R. A.

BAKER, W. E., and FROELICH, F. E.

A Buffer Store for Data Transmission, Monograph 4139.

BALLMAN, A. A., see Laudise, R. A.

BALLMAN, A. A., see Van Uitert, L. G.

BARNES, C. E.

Broadband Isolators and Variable Attenuators for Millimeter Wavelengths, Monograph 4074.

BARRETT, W. A., HUMPHREY, F. B., RUFF, J. A., and STADLER, H. L.

A Card-Changeable Permanent Magnet Twistor Memory of Large Capacity, Monograph 4012.

BASSECHES, H.

Oxidation of Sputtered Tantalum Films, Monograph 4001.

BATTERMAN, B. W.

Imaginary Part of X-Ray Scattering Factor for Germanium, Monograph 3967.

BENEŠ, V. E.

A "Renewal" Limit Theorem for General Stochastic Processes, Monograph 4120.

BENNETT, W. R., and FROELICH, F. E.

Comparing Modulation Methods for Data Transmission over Telephone Channels, Monograph 4109.

BIONDI, F. J., see Koontz, D. E.

BIRD, C. M., see Flanagan, J. L.

BJORLING, C. G., see Riesz, R. P.

BOGERT, B. P.

Seismic Data Collection, Reduction, and Digitization, Monograph 4067.

BOGERT, B. P.

Transfer Function of a Short-Period Vertical Seismograph, Monograph 4069.

BOND, W. L., see Garrett, C. G. B.

BOURNE, H. C., JR., see Kadota, T. T.

BOYLE, W. S., see Kisiuk, P.

BOZORTH, R. M., see Wolf, W. P.

BRAINARD, R. C., KAMMERER, F. W., AND KIMME, E. G.

Subjective Effects of Noise in Low-Resolution Television Systems,
Monograph 4156.

BROWN, W. L., see Smits, F. M.

BUCHSBAUM, S. J., and GALT, J. K.

Alfven Waves in Solid-State Plasmas, Monograph 4075.

BUCHSBAUM, S. J., see Platzman, P. M.

BUEHLER, E., see Hauser, J. J.

BUGBEE, L. F., JR.

A Tone Disabler for Bell System 1A Echo Suppressors, Monograph
4083.

BURTON, H. O., see Cowell, W. R.

CALDWELL, C. W.

**Thermionic Omission vs. Carbon Diffusion in Nickel-Based Oxide
Cathodes,** Monograph 4032.

CAPUTO, S., and HIGHLEYMAN, W. H.

**Variable-Frequency Sinusoidal Oscillators Using a Single Active
Element,** Monograph 4107.

CHYNOWETH, A. G., LOGAN, R. A., and THOMAS, D. E.

**Phonon-Assisted Tunneling in Silicon and Germanium Esaki Junc-
tions,** Monograph 4157.

CHYNOWETH, A. G., and MURRAY, A. A.

Pinch Effect in Indium Antimonide, Monograph 4002.

CLOGSTON, A. M., see Wolff, P. A.

COLLINS, C. A., and WILLIAMS, A. D.

**Noise and Intermodulation Problems in Multichannel Closed-Cir-
cuit Television,** Monograph 4051.

- COOK, J. S., LOUISELL, W. H., and QUATE, C. F.
Space-Charge Wave Parametric Amplifiers, Monograph 3969.
- COURTNEY-PRATT, J. S.
Some Unconventional Methods of High-Speed Photography, Monograph 4076.
- COWELL, W. R., and BURTON, H. O.
Computer Simulation of Use of Group Codes with Retransmission on a Gilbert Burst Channel, Monograph 4142.
- CRAFT, W. H., see KOONTZ, D. E.
- CUTLER, C. C.
Radio Communication by Means of Satellites, Monograph 4033.
- DANTE, B. T., see McLEAN, D. A.
- DAVID, E. E., JR.
The Reproduction of Sound, Monograph 3993.
- DAVID, E. E., JR., and SCHODDER, G. R.
Pitch Discrimination of Complex Sounds, Monograph 4137.
- DE MONTE, R. W.
Synthesis of Networks Simulating Impedance of Loaded Cable Facilities, Monograph 4138.
- DEVLIN, G. E., Mc KENNA, J., MAY, A. D., and SCHAWLOW, A. L.
Composite Rod Optical Masers, Monograph 4108.
- DIETZ, R. E., HOFFFIELD, J. J., and THOMAS, D. G.
Excitons and the Absorption Edge of ZnO, Monograph 4048.
- DIETZ, R. E., see PAPPALARDO, R.
- DIETZ, R. E., and SELWOOD, P. W.
Effect of Chemisorbed Hydrogen on the Magnetization of Nickel, Monograph 3994.

DILLON, J. F., JR., and WALKER, L. R.

Ferrimagnetic Resonance in Rare-Earth Doped Yttrium Iron Garnet, Monograph 4071.

DOUGLASS, D. C.

Self-Diffusion and Velocity Correlation, Monograph 3995.

D'STEFAN, D. J., see Klein, D. L.

DUNN, H. K.

Methods of Measuring Vowel Formant Bandwidths, Monograph 4111.

ENLOE, L. H.

Decreasing the Threshold in FM by Frequency Feedback, Monograph 4082.

FEDER, D. O., see Koontz, D. E.

FEHER, G., see Wilson, D. K.

FLANAGAN, J. L.

Audibility of Periodic Pulses and a Model for the Threshold, Monograph 4058.

FLANAGAN, J. L., and BIRD, C. M.

Minimum Phase Responses for the Basilar Membrane, Monograph 4117.

FRISCH, H. L.

Time Lag in Thermalization of a Fast Ion in a Plasma, Monograph 4028.

FRISCH, H. L., and LEBOWITZ, J. L.

Electron Transport at High Temperatures in the Presence of Impurities, Monograph 4020.

FRISCH, H. L., and WASSERMAN, E.

Chemical Topology, Monograph 4030.

FROEHLICH, F. E., see Baker, W. E.

FROEHLICH, F. E., see Bennett, W. R.

FROST, H. B., see Koontz, D. E.

GALT, J. K., see Buchsbaum, S. J.

GARN, P. D.

Thermal Analysis—A Critique, Monograph 3992.

GARRETT, C. G. B., KAISER, W., and BOND, W. L.

Stimulated Emission into Optical Whispering Modes of Spheres,
Monograph 4080.

GARRETT, C. G. B., see Kaiser, W.

GELLER, S.

Parameter Interaction in Least Squares Structure Refinement,
Monograph 4070.

GELLER, S., WILLIAMS, H. J., and SHERWOOD, R. C.

**Magnetic and Crystallographic Study of Nd-substituted Y and Gd
Fe Garnets**, Monograph 4021.

GERSHENZON, M., and MIKULYAK, R. M.

Electroluminescence at p-n Junctions in Gallium Phosphide, Mono-
graph 3987.

GILBERT, E. N.

Random Plane Networks, Monograph 4121.

GILBERT, E. N., and RIORDAN, J.

Symmetry Types of Periodic Sequences, Monograph 4072.

GILBERT, J. F., see Logan, R. A.

GNANADESIKAN, G., see Wilk, M. B.

GNANADESIKAN, R., see Wilk, M. B.

GOLDEY, J. M., MACKINTOSH, I. M., and ROSS, I. M.

Turn-Off Gain in p-n-p-n Triodes, Monograph 4042.

GRAHAM, R. E.

Snow Removal—A Noise-Stripping Process for Picture Signals,
Monograph 4158.

GRESH, M., see Schwartz, N.

GROLL, P. A., see Gupta, S. S.

GUPTA, S. S.

Percentage Points and Modes of Order Statistics from the Normal Distribution, Monograph 4034.

GUPTA, S. S., and GROLL, P. A.

Gamma Distribution in Acceptance Sampling Based on Life Tests, Monograph 4073.

GYORGY, E. M., see Nesbitt, E. A.

HAASE, O., and HEIDENREICH, R. D.

"Anomalous" Electron Double Diffraction, Monograph 4049.

HAGSTRUM, H. D.

Reflection of Noble Gas Ions at Solid Surfaces, Monograph 4035.

HANNAY, N. B.

Mass Spectrographic Analysis of Solids, Monograph 4036.

HARMON, L. D., LEVINSON, J., and VAN BERGELJK, W. A.

Analog Models of Neural Mechanism, Monograph 4159.

HARMON, L. D., VAN BERGELJK, W. A., and LEVINSON, J.

Studies with Artificial Neurons, Monograph 4134.

HAUSER, J. J., and BUEHLER, E.

Effect of Plastic Deformation and Annealing Temperature on Superconducting Properties, Monograph 4116.

HAYES, J. S., see Koontz, D. E.

HEIDENREICH, R. D., see Haase, O.

HELMKE, G., see Koontz, D. E.

HELMS, H. D., and THOMAS, J. B.

Truncation Error of Sampling-Theorem Expansions, Monograph 4106.

HERRIOTT, D. R.

Multiple-Wavelength, Multiple-Beam Interferometric Observation of Flat Surfaces, Monograph 4023.

HERRIOTT, D. R.

Optical Properties of a Continuous Helium-Neon Optical Maser,
Monograph 4115.

HIGHLEYMAN, W. H., see Caputo, S.

HIGHLEYMAN, W. H.

An Analog Method for Character Recognition, Monograph 4015.

HOBSTETTER, J. N., and RENTON, C. A.

Point Defects in p-Type Ge by Deformation, Quenching, and Electron Bombardment, Monograph 4160.

HOPFIELD, J. J.

Exciton States and Band Structure in CdS and CdSe, Monograph 4047.

HOPFIELD, J. J., see Dietz, R. E.

HOPFIELD, J. J., see Lax, M.

HOPFIELD, J. J., see Thomas, D. G.

HOWDEN, W. E., see Koontz, D. E.

HUFF, D. R., see Koontz, D. E.

HUMPHREY, F. B., see Barrett, W. A.

HUTSON, A. R.

Piezoelectric Scattering and Phonon Drag in ZnO and CdS, Monograph 4050.

HUYETT, M. J., see Wilk, M. B.

JACCODINE, R. J.

Study of Devitrification of Lithium Glass, Monograph 4037.

JACOB, E. S., see Koontz, D. E.

JAMES, D. B., and VAUGHAN, H. E.

ESSEX—A Continuing Research Experiment in Time-Separation Communication, Monograph 4077.

JULESZ, B.

Visual Pattern Discrimination, Monograph 4161.

KADOTA, T. T., and BOURNE, H. C., JR.

Stability Conditions of Pulse-Width-Modulated Systems through the Second Method of Lyapunov, Monograph 4013.

KAISER, W., GARRETT, C. G. B., and WOOD, D. L.

Fluorescence and Optical Maser Effects in $\text{CaF}_2 \text{ Sm}^{++}$, Monograph 4014.

KAISER, W., see Garrett, C. G. B.

KAMMERER, F. W., see Brainard, R. C.

KANE, E. O.

Spectral Moments and Continuum Perturbation Theory, Monograph 4162.

KARLIK, S., see Schwartz, N.

KIMME, E. G., see Brainard, R. C.

KINARIWALA, B. K.

The Esaki Diode as a Network Element, Monograph 4123.

KIRBY, D. B., and ROSENTHAL, C. W.

Computer Program for Preparing Wiring Diagrams, Monograph 4052.

KISLIUK, P., and BOYLE, W. S.

Pulsed Ruby Maser as a Light Amplifier, Monograph 4044.

KISLIUK, P., and WALSH, D. J.

Interference Between Beams from the Opposite Ends of a Ruby Optical Maser, Monograph 4084.

KLAUDER, J. R.

Modification of Electron Energy Levels by Impurity Atoms, Monograph 3986.

KLAUDER, J. R., and ANDERSON, P. W.

Spectral Diffusion Decay in Spin Resonance Experiments, Monograph 4163.

KLEIN, D. L., and D'STEFAN, D. J.

Controlled Etching of Silicon in the HF-HNO₃ System, Monograph 4053.

KLEINMAN, D. A., and SPITZER, W. G.

Theory of the Optical Properties of Quartz in the Infrared, Monograph 4105.

KNOX, K., and MITCHELL, D. W.

Preparation and Structure of K₂NaCrF₆, K₂NaFeF₆ and K₂NaGaF₆, Monograph 4150.

KOMETANI, T. Y.

Determination of Sodium Fluoride in Wood, Monograph 3998.

KOONTZ, D. E., BIONDI, F. J., HELMKE, G., HAYES, J. S., FEDER, D. O., JACOB, E. S., HOWDEN, W. E., HUFF, D. R., RICHARDS, J. W., THOMAS, C. O., CRAFT, W. H., MAURER, D. W., and FROST, H. B.

Materials and Electron-Device Processing, Monograph 4136.

KOONCE, S. E., see Nielsen, J. W.

KUEBLER, N. A., and NELSON, L. S.

Radiant Energies and Irradiances of Capacitor Discharge Lamps, Monograph 4079.

KUNZLER, J. E.

Superconductivity in High Magnetic Fields at High Current Densities, Monograph 4016.

KUROKAWA, K.

Actual Noise Measure of Linear Amplifiers, Monograph 4003.

KUTTRUFF, K. H., see Schroeder, M. R.

LAUDISE, R. A., and BALLMAN, A. A.

Solubility of Quartz under Hydrothermal Conditions, Monograph 4004.

LAX, M., and HOPFIELD, J. J.

Selection Rules Connecting Different Points in the Brillouin Zone, Monograph 4025.

LEBOWITZ, J. L., see Frisch, H. L.

LEE, C. Y.

Categorizing Automata by W-Machine Programs, Monograph 4005.

LEE, C. Y.

An Algorithm for Path Connections and Its Applications, Monograph 4017.

LEVINSON, J., see Harmon, L. D.

LIEHR, A. D.

A Comparison of Theories: Molecular Orbital, Valence Bond, and Ligand Field, Monograph 4141.

LIEHR, A. D.

Semiempirical Theory of Vibronic Interactions in some Conjugated Hydrocarbons, Monograph 4135.

LIGENZA, J. R.

Oxidation of Silicon by High-Pressure Steam, Monograph 4078.

LINARES, R. C., see Nielsen, J. W.

LINARES, R. C., JR., see Pappalardo, R.

LINARES, R. C., see Van Uitert, L. G.

LINK, G. L.

Motion of c Domain Centers in BaTiO₃, Monograph 4112.

LOGAN, B. F., see Schroeder, M. R.

LOGAN, R. A., AUGUSTYNIAK, W. M., and GILBERT, J. F.

Electron Bombardment Damage in Silicon Esaki Diodes, Monograph 3981.

LOGAN, R. A., see Chynoweth, A. G.

LOGAN, R. A., see Spitzer, W. G.

LOUISELL, W. H., see Cook, J. S.

LOUISELL, W. H., YARIV, A., and SIEGMAN, A. E.

Quantum Fluctuations and Noise in Parametric Processes, Monograph 4081.

LOUISELL, W. H., see Yariv, A.

LUONGO, J. P.

Chemical Structure by Absorption Spectroscopy, Monograph 4046.

MACKINTOSH, I. M., see Goldey, J. M.

MAC PHERSON, D. H., and YORK, R. K.

Semipermanent Storage by Capacitive Couplings, Monograph 4018.

MASON, W. P.

Semiconductor Devices as Pressure Transducers, Monograph 4118.

MATHEWS, M. V., see Speeth, S. D.

MATSUOKA, S.

Hypothesis of Voids in Semicrystalline Polymers, Monograph 4057.

MATTHIAS, B. T., see Wolff, P. A.

MAURER, D. W., see Koontz, D. E.

MAY, A. D., see Devlin, G. E.

MELZAK, Z. A.

Plane Motion with Curvature Limitations, Monograph 4038.

MIKULYAK, R. M., see Gershenzon, M.

MIMS, W. B., NASSAU, K., and MCGEE, J. D.

Spectral Diffusion in Electron Resonance Lines, Monograph 4027.

MITCHELL, D. W., see Knox, K.

MOORE, G. E.

Disassociation of Adsorbed CO by Slow Electrons, Monograph 3984.

MOREL, P., and ANDERSON, P. W.

Superconducting State Parameters with Retarded Electron-Phonon Interaction, Monograph 4164.

MOREL, P., see Anderson, P. W.

MURRAY, A. A., see Chynoweth, A. G.

MYERS, G. H., and THOMPSON, T. H.

Guidance of Tiros I, Monograph 4104.

Mc GEE, J. D., see Mims, W. B.

Mc KENNA, J., see Devlin, G. E.

Mc LEAN, D. A., WEHE, H. G., and DANTE, B. T.

Polycarbonates as Capacitor Dielectrics, Monograph 3980.

Mc SKIMIN, H. J., and THOMAS, D. G.

Elastic Moduli of Cadmium Telluride, Monograph 4151.

NASSAU, K., see Mims, W. B.

NELSON, L. S., see Kuebler, N. A.

NESBITT, E. A., and GYORGY, E. M.

Two-Phase Permalloy for High-Speed Switching, Monograph 3982.

NIELSEN, J. W., LINARES, R. C., and KOONCE, S. E.

Genesis of the Barium Titanate Butterfly Twin, Monograph 4124.

OLMSTEAD, P. S.

Statistical Evaluation, Monograph 4125.

OLSON, H. M., and VON OHLEN, L. H.

Coaxial Magnetron, Monograph 4045.

PAPPALARDO, R.

Absorption Spectra of Cu^{2+} in Different Crystal Coordinations, Monograph 3983.

PAPPALARDO, R., and DIETZ, R. E.

Absorption Spectra of Transition Ions in CdS Crystals, Monograph 4006.

PAPPALARDO, R., WOOD, D. L., and LINARES, R. C., JR.

Optical Absorption Spectra of Doped Oxide Systems, Monograph 4126.

PETER, M., see Wolff, P. A.

PFAHNL, A.

Aging of Electronic Phosphors in Cathode Ray Tubes, Monograph 3989.

PFANN, W. G., and THURSTON, R. N.

Semiconducting Stress Transducers using Transverse and Shear Piezoresistance, Monograph 4056.

PIERCE, J. R.

Momentum and Energy of Waves, Monograph 4113.

PLATZMAN, P. M., and BUCHSBAUM, S. J.

Effect of Collisions on the Landau Damping of Plasma Oscillations, Monograph 4039.

PRINCE, E., see Abrahams, S. C.

QUATE, C. F., see Cook, J. S.

RAISBECK, G.

Optimal Lumped Loading with Four-Terminal Networks, Monograph 4128.

RENTON, C. A., see Hobstetter, J. N.

RICHARDS, J. W., see Koontz, D. E.

RIESZ, R. P., and BJORLING, C. G.

Sample Preparation for Transmission Electron Microscopy of Germanium, Monograph 4022.

RIORDAN, J., see Gilbert, E. N.

ROSENTHAL, C. W.

Computing Machine Aids to a Development Project, Monograph 4019.

ROSENTHAL, C. W., see Kirby, D. B.

ROSS, I. M., see Goldey, J. M.

ROY, A. S.

New Falling Velocity Method of Density Determination for Small Solid Samples, Monograph 4007.

RUFF, J. A., see Barrett, W. A.

SCHAWLOW, A. L.

Fine-Line Spectra of Chromium Ions in Crystals, Monograph 4152.

SCHAWLOW, A. L., see Devlin, G. E.

SCHODDER, G. R., see David, E. E., Jr.

SCHROEDER, M. R., and KUTTRUFF, K. H.

On Frequency Response Curves in Rooms, Monograph 4129.

SCHROEDER, M. R., and LOGAN, B. F.

Improved Quasi-Stereophony and Colorless Artificial Reverberation, Monograph 3996.

SCHWARTZ, N., GRESH, M., and KARLIK, S.

Niobium Solid Electrolytic Capacitors, Monograph 3985.

SELWOOD, P. W., see Dietz, R. E.

SHERWOOD, R. C., see Geller, S.

SIEGMAN, A. E., see Louisell, W. H.

SIKORSKI, M. E., and ANDREATCH, P., JR.

Tunnel Diode Hydrostatic Pressure Transducer, Monograph 4165.

SINGER, F. J.

Compatibility in Communications, Monograph 4040.

SIPRESS, J. M.

Synthesis of Active RC Networks, Monograph 4110.

SLICHTER, W. P.

Molecular Motion in Disordered Regions of Solid Polyethylene, Monograph 4060.

SMITH, K. D., see Smits, F. M.

SMITS, F. M., SMITH, K. D., and BROWN, W. L.

Solar Cells for Communication Satellites in the Van Allen Belt,
Monograph 4043.

SNYDER, L. C.

**Hückel Molecular Orbital Computations to Describe the Benzidine
Rearrangement,** Monograph 4114.

SODEN, R. R., see Van Uitert, L. G.

SPEETH, S. D.

Seismometer Sounds, Monograph 3999.

SPEETH, S. D., and MATHEWS, M. V.

Sequential Effects in the Signal-Detection Situation, Monograph 4008

SPITZER, W. G., see Kleinman, D. A.

SPITZER, W. G., TRUMBORE, F. A., and LOGAN, R. A.

Properties of Heavily Doped n-Type Germanium, Monograph 4055.

STADLER, H. L., see Barrett, W. A.

STILLINGER, F. H., JR.

Compressibility of Simple Fused Salts, Monograph 4063.

STILLINGER, F. H., JR.

Interfacial Solutions of the Poisson-Boltzmann Equations, Mono-
graph 4061.

STONE, H. A., JR., and WARNER, R. M.

The Field-Effect Tetrode, Monograph 3991.

SUGANO, S.

Recent Progress of Crystal Field Theory, Monograph 4153.

TANG, C. C. H.

**Optimization of Waveguide Tapers Capable of Multimode Propaga-
tion,** Monograph 4029.

THOMAS, C. O., see Koontz, D. E.

THOMAS, D. E., see Chynoweth, A. G.

THOMAS, D. G.

Excitons and Band Splitting Produced by Uniaxial Stress in CdTe,
Monograph 4054.

THOMAS, D. G., and HOPFIELD, J. J.

A Magneto-Stark Effect and Exciton Motion in CdS, Monograph
4066.

THOMAS, D. G., see Dietz, R. E.

THOMAS, D. G., see McSkimin, H. J.

THOMAS J. B., see Helms, H. D.

THOMPSON, T. H., see Myers, G. H.

THURSTON, R. N., see Pfann, W. G.

TIEN, P. K.

Noise in Parametric Amplifiers, Monograph 4009.

TREVES, D.

Magnetic Studies of Some Orthoferrites, Monograph 4166.

TRUMBORE, F. A., see Spitzer, W. G.

TUKEY, J. W.

**Keeping Research in Contact with the Literature: Citation Indices
and Beyond,** Monograph 4127.

TUKEY, J. W.

The Future of Data Analysis, Monograph 4130.

UENOHARA, M.

Extremely Low-Noise Variable Capacitance Parametric Amplifier,
Monograph 4031.

UENOHARA, M., and WOLFE, R.

Parametric Amplifier with Thermoelectric Refrigeration, Monograph
4068.

VAN BERGELJK, W. A., see Harmon, L. D.

VAN UITERT, L. G., and SODEN, R. R.

Influence of Ion Size upon Intensity of Eu^{3+} Fluorescence in the Tungstates, Monograph 4154.

VAN UITERT, L. G., LINARES, R. C., SODEN, R. R., and BALLMAN, A. A.

F-Orbital Electron Wave Function Mixing in Concentration Quenching of Eu^{3+} , Monograph 4167.

VAUGHAN, H. E., see James, D. B.

VON OIHSEN, L. H., see Olson, H. M.

VON ROOSBROECK, W.

Current-Carrier Transport with Space Charge in Semiconductors, Monograph 3997.

WALKER, L. R., see Dillon, J. R., Jr.

WALRAFEN, G. E.

Raman Spectral Studies of Aqueous Solutions of Selenious Acid, Monograph 4131.

WALRAFEN, G. E.

Raman Spectral Studies of the Effects of Electrolytes on Water, Monograph 4168.

WALSH, D. J., see Kisliuk, P.

WARNER, R. M., see Stone, H. A., Jr.

WASSERMAN, E., see Frisch, H. L.

WEHE, H. G., see McLean, D. A.

WERNICK, J. H., see Wertheim, G. K.

WERTHEIM, G. K.

Hyperfine Structure of Divalent and Trivalent Fe^{57} in Cobalt Oxide, Monograph 4065.

WERTHEIM, G. K., and WERNICK, J. H.

Fe^{57} Mossbauer Effect in Cu-Ni Alloys, Monograph 4010.

WILK, M. B., and GNANADESIKAN, G.

Graphical Analysis of Multi-Response Experimental Data using Ordered Distances, Monograph 4011.

WILK, M. B., GNANADESIKAN, R., and HUYETT, M. J.

Probability Plots for the Gamma Distribution, Monograph 4132.

WILLIAMS, A. D., see Collins, C. A.

WILLIAMS, H. J., see Geller, S.

WILLIAMS, H. J., see Wolff, P. A.

WILSON, D. K., and FEHER, G.

Electron Spin Resonance Experiments on Donors in Silicon, Monograph 4064.

WOLF, W. P., and BOZORTH, R. M.

Susceptibility of Gadolinium Iron Garnet below the Neel Point, Monograph 4062.

WOLFE, R., see Uenohara, M.

WOLFF, P. A.

Localized Moments in Metals, Monograph 4059.

WOLFF, P. A., ANDERSON, P. W., CLOGSTON, A. M., MATTHIAS, B. T.,
PETER, M., and WILLIAMS, H. J.

Magnetization of Localized State in Metals, Monograph 4169.

WOOD, D. L., see Kaiser, W.

WOOD, D. L., see Pappalardo, R.

YAFET, Y.

Hyperfine Interaction Due to Orbital Magnetic Moment of Electrons with Large g Factors, Monograph 4041.

YARIV, A., see Louisell, W. H.

YARIV, A., and LOUISELL, W. H.

Transition Probability Due to Random Perturbations, Monograph 4155.

YORK, R. K., see MacPherson, D. H.

ZAJAC, E. E.

Deflection and Buckling of a Beam-Column with a One-Sided Constraint, Monograph 4133.

November, 1962

THE BELL SYSTEM

Technical Journal

DEVOTED TO THE SCIENTIFIC AND ENGINEERING
ASPECTS OF ELECTRICAL COMMUNICATION

ADVISORY BOARD

H. I. ROMNES

J. B. FISK

J. E. DINGMAN

EDITORIAL COMMITTEE

A. C. DICKIESON, *Chairman*

A. J. BUSCH

J. H. FELKER

L. R. COOK

K. E. GOULD

R. P. CROSS

W. C. HITTINGER

R. L. DIETZOLD

J. R. PIERCE

L. E. DYER

W. O. TURNER

EDITORIAL STAFF

G. E. SCHINDLER, JR., *Editor*

A. ROSENTHAL, *Production Editor*

L. M. COLE, JR., *Assistant Editor*

J. T. MYSAK, *Technical Illustrations*

T. N. POPE, *Circulation Manager*

INDEX

VOLUME XLI

1962

AMERICAN TELEPHONE AND TELEGRAPH COMPANY
NEW YORK

LIST OF ISSUES IN VOLUME XLI

No. 1, January.....	Pages	1-386
No. 2, March.....		387-802
No. 3, May.....		803-1174
No. 4, July.....		1175-1480
No. 5, September.....		1481-1694
No. 6, November.....		1695-1878

Index to Volume XLI

A

- A4 CHANNEL BANK *illus* 341
 A5 CHANNEL BANK 321-59
 Aaron, M. R.
 biographical material 383, 797
 PCM Transmission in the Exchange Plant 99-141
 Probability Distribution for the Phase Jitter in Self-Timed Reconstructive Repeaters for PCM 503-58
 Albert, W. G. 351
 ALGEBRA, networks, connecting 1249-74
Algebraic and Topological Properties of Connecting Networks (V. E. Beneš) 1249-74
 ALTERNATE ROUTING, automatic traffic 769-96
 AMPLIFIERS
 channel banks, A5 329-39
 measurements, passive 361-81
Analysis of Inherent Distortion in Asynchronous Frequency-Shift Modulators (L. R. Bowyer, W. H. Highleyman) 1695-1736
Analysis of the Phase-Controlled Loop with a Sawtooth Comparator (A. J. Goldstein) 603-33
 Andrews, F. T. 97, 216
 Apgar, C. E. 958
Approximate Solutions for the Coupled Line Equations (H. E. Rowe) 1011-29
 Assadourian, F. 1436
 ASTRONOMY, radio
 emission, solar 1799-1812
 Atalla, M. M. 827
 Augustyniak, W. M. 1587
 AUTOMATIC ALTERNATE ROUTING
 traffic 769-96
Automatic Stereoscopic Presentation of Functions of Two Variables (B. Julesz, J. E. Miller) 663-76

- Automatic Trouble Diagnosis of Complex Logic Circuits* (S. H. Tsiang, W. Ulrich) 1177-1200

B

- Bakanowski, A. E. 828
 Ballentine, W. E. 351
 biographical material 1875
 Solid-State Receiver in the TL Radio System 1831-63
 BANKS, channel
 A4 *illus* 341
 A5 321-59
 illus 341-43
 Barbieri, F. R. 451
 Bareille, G. J. 900
 Barnard, R. D.
 biographical material 383
 Variational Techniques Applied to Phase-Controlled Oscillators 227-56
 BASILAR MEMBRANE, displacement 959-1009
 BELL SYSTEM TECHNICAL JOURNAL
 Advisory Board, *see* inside front cover
 Editorial Committee, *see* inside front cover
 Editorial Staff, *see* inside front cover
 40th anniversary 1175
 Benedict, T. S. 451
 Beneš, Václav E.
 Algebraic and Topological Properties of Connecting Networks 1249-74
 biographical material 383, 1477, 1691
 Heuristic Remarks and Mathematical Problems Regarding the Theory of Connecting Systems 1201-47
 On Rearrangeable Three-Stage Connecting Networks 1481-92
 Ultimately Periodic Solutions to a Nonlinear Integro-differential Equation 257-68
 Bennett, W. R. 1829

- Berman, Beverly 1436
 Beyer, J. 600
 Bies, F. R. 351
Bipolar Repeater for Pulse Code Signals
 (J. S. Mayo) 25-97
 Blecher, Franklin H. 1860
 biographical material 383
Transistorized A5 Channel Bank for
Broadband Systems 321-59
 Bodtmann, W. F. 1860
 Bond, W. L. 451
 BOOLEAN FUNCTIONS 1337-46
 Bostwick, Lee G.
 biographical material 797
Miniature Tuned Reed Selector of High
Sensitivity and Stability 411-24
 Bowers, K. D. 379
 Bowyer, L. Ray
Analysis of Inherent Distortion in
Asynchronous Frequency-Shift Modu-
lators 1695-1736
 biographical material 1875
 Boyd, Gary D.
 biographical material 1477
Generalized Confocal Resonator Theory
 1347-69
 Boyd, R. C. 351
 Bradford, K. F. 424
 Branower, Miss M. R. 541
 BREMSSTRAHLUNG, stimulated emission
 1557-71
 BROADBAND CARRIERS
 channel bank, A5 321-59
 Brown, W. L. 1587
 Bullington, K. 1471
 Bullock, Donald B.
 biographical material 1477
Over-All Characteristics of a TASI
System 1439-54
 BUSY PERIODS
 delays 311-20
 trunks 311-20
 Byrne, Charles J.
 biographical material 797
Properties and Design of the Phase-
Controlled Oscillator with a Sawtooth
Comparator 559-602
- C**
- CABLES, submarine
 TASI system 1439-73
 Caffrey, R. E. 1536
 CARRIERS
 broadband
 channel bank, A5 321-59
 frequencies
 measurement 1493-1517
 interference
 satellites 921-43
 modulation, pulse code, *see* Modulation
 Cetlin, B. B. 451
 CHANNEL BANKS
 A4 illus 341
 A5 321-59
 amplifiers 329-39
 equipment design 339-44
 features 326-29
 history 321-22
 miniaturization 339-44
 performance 345-50
 Chapman, R. C. 216
Characteristics of the Service Provided by
Communications Satellites in Un-
controlled Orbits (J. D. Rinehart,
 M. F. Robbins) 1621-70
 Chasek, N. E. 1860
 CHESTER, NEW JERSEY 1746
 Chover, J. 499
 CIRCUITS
 logic, trouble diagnosis 1177-1200
 sequential, minimum 1759-68
 trouble diagnosis 1177-1200
 CODE MODULATION *See* Modulation:
 pulse code
 CODERS
 companded
 modulation, pulse code 173-226
 COLD TESTS
 diodes 361-81
Comment on "Discrimination against
Unwanted Orders in the Fabry-Perot
Resonator" 1475-76
 COMMON CARRIERS *See* Carriers
 COMMUNICATION SATELLITES *See* Satel-
 lites
Companded Coder System for an Experi-

- mental PCM Terminal* (H. Mann, H. M. Straube, C. P. Villars) 173-226
- COMPARATORS, sawtooth 559-633
- COMPUTABILITY 877-84
- Confocal Resonator Theory, Generalized* (G. D. Boyd, H. Kogelnik) 1347-69
- CONNECTING NETWORKS *See* Networks
- Crater, T. V. 541
- CREOSOTE 1744-46
- Crowley, T. H. 1768
- CRYOGENICS 1865
- CRYSTALS
 percolation 909-20
- Curtis, Harold E.
 biographical material 1171
 Interference between Satellite Communication Systems and Common Carrier Surface Systems 921-43
- D**
- DATA TRANSMISSION
 network, telephone 1399-1414
- Davey, J. R. 1731
- Davis, Claude G. 171
 biographical material 384
 Experimental Pulse Code Modulation System for Short-Haul Trunks 1-24
- Delay Distributions for Simple Trunk Groups with Recurrent Input and Exponential Service Times* (L. Takács) 311-20
- Descloux, A. 1246
- Design and Analysis of Pattern Recognition Experiments* (W. H. Highleyman) 723-44
- DETECTORS, zero crossing 1700-04
- DIAL TELEPHONE, DIALING
 traffic, *see* Traffic
- DICTIONARIES, maintenance 1177-1200
- DIFFERENTIAL EQUATIONS
 linear, solution 1275-94
- DIFFRACTION
 guanidinium aluminum sulfate hexa hydrate 425-52
- Diffusion Length Measurement by Means of Ionizing Radiation* (W. Rosenzweig) 1573-88
- DIODES
 capacitance
 nonlinear, power 677-721
 cold tests 361-81
 Esaki, *see* Diodes: tunnel
 metal-oxide-silicon 803-31
 "MOS" 803-31
 tunnel
 (in) networks 857-76, 1537-56
- DIRECT TRAFFIC 1415-37
- DISCRIMINATION
 Fabry-Perot resonator 453-62, 1475-76
 Discrimination Against Unwanted Orders in the Fabry-Perot Resonator (P. P. Kisliuk, D. A. Kleinman) 453-62
- DISPLACEMENT, basilar membrane 959-1009
- DISTRIBUTIONS
 delay 311-20
 lognormal 1737-58
- Doba, S. 1516
- Donkin, A. E. 1471
- Donoghue, J. L. 351
- Dorros, I. 1731
- DROPOUTS
 data transmission by telephone network 1399-1414
- E**
- EAR
 basilar membrane, displacement 959-1009
- Eichelberger, E. 1768
- ELECTRONS
 emission
 Bremsstrahlung 1557-71
- ELECTRON TUBES
 klystrons
 457A 945-58
 Bremsstrahlung 1557-71
 stability 945-58
 traveling-wave, reliability 647-52
- ELECTRONIC SWITCHING SYSTEMS 1177-1200
- Elek, J. William
 biographical material 1691
 Thermoelastic Stresses in Balanced and Unbalanced Seals 1519-36

- Elliott, John S., Jr.
 biographical material 1691
High-Precision Direct-Reading Loss and Phase Measuring Set for Carrier Frequencies 1493-1517
- EMISSION
 Bremsstrahlung 1557-71
- ENCAPSULATION 1519-36
- Enloe, L. H. 941
- EQUALIZATION
 repeaters, bipolar 30-49
- EQUATIONS
 differential
 linear, solution 1275-94
 integrodifferential
 solutions 257-68
 waveguides 1011-29, 1589-1619
- ERRORS, data transmission 1399-1414
- ESAKI DIODES *See* Diodes: tunnel
- Evaluation of the Net Radiant Heat Transfer between Specularly Reflecting Plates* (R. Geynet, R. J. Grosh, V. E. Holt) 1865-74
- EXCHANGE PLANT
 modulation, pulse code 99-141
 traffic 1231-34
- Experimental Pulse Code Modulation System for Short-Haul Trunks* (C. G. Davis) 1-24
- F**
- FABRY-PEROT RESONATOR 453-62,
 1347-69, 1475-76
- Farrow, C. W. 1731
- FILTERS
 oscillators, phase-controlled 237-47
- FITS, shrink 885-907
- Flanagan, James L.
 biographical material 1171
Models for Approximating Basilar Membrane Displacement—Part II. Effects of Middle-Ear Transmission and Some Relations between Subjective and Physiological Behavior 959-1009
- 457A KLYSTRON *See* Electron Tubes
- FOURIER SERIES 1295-1336
- Fox, A. Gardner 1366, 1475-76
- Fraser, John M. 1471
 biographical material 1477
Over-All Characteristics of a TASI System 1439-54
- FREQUENCY(IES)
 carrier, measurement 1493-1517
- FREQUENCY MODULATION *See* Modulation
- Frisch, H. L.
 biographical material 1171
Monte Carlo Solution of Bond Percolation Processes in Various Crystal Lattices 909-20
- Fultz, K. E. 24
- FUNCTIONS
 Boolean 1337-46
 lognormal 1737-58
 non-computable 877-84
 variables, two
 presentation, stereoscopic 663-76
 wave, spheroidal 1295-1336
 zero-memory, nonlinear
 representation 1813-30
- FUNGI 1744-46
- Further Analysis of Errors Reported in "Capabilities of the Telephone Network for Data Transmission"* (R. Morris) 1399-1414
- G**
- Gammie, J. 1860
- GAUSSIAN NOISE, barrier problem 463-501
- Geller, S.
 biographical material 797
X-Ray Diffraction Study of the Structure of Guanidinium Aluminum Sulfate Hexahydrate 425-52
- Generalized Confocal Resonator Theory* (G. D. Boyd, H. Kogelnik) 1347-69
- GENERALIZED TELEGRAPHIST'S EQUATIONS
 waveguide, lined, imperfect 1590-94
- Geusic, Joseph E.
 biographical material 1478
Unidirectional Traveling-Wave Optical Maser 1371-97
- Geynet, Rosemary
 biographical material 1875

- Evaluation of the Net Radiant Heat Transfer between Specularly Reflecting Plates* 1865-74
- Gilbert, E. N. 499, 541
- Gimpelson, L. A. 1436
- Ginty, J. J. 351
- GOLD, heat transfer 1868
- Goldstein, A. Jay 600
- Analysis of the Phase-Controlled Loop with a Sawtooth Comparator* 603-33
- biographical material 798
- Gordon, J. P. 1366
- Gordon, S. B.
- biographical material 1171
- Monte Carlo Solution of Bond Percolation Processes in Various Crystal Lattices* 909-20
- Grade of Service of Direct Traffic Mixed with Store-and-Forward Traffic* (J. Otterman) 1415-137
- Gray, James R. 216
- biographical material 384, 798
- Performance Limitations of a Practical PCM Terminal* 143-71
- Probability Distribution for the Phase Jitter in Self-Timed Reconstructive Repeaters for PCM* 503-58
- Grosh, R. J.
- biographical material 1875
- Evaluation of the Net Radiant Heat Transfer between Specularly Reflecting Plates* 1865-74
- Gryb, R. M. 1414
- GUANIDINIUM ALUMINUM SULFATE HEX-AHYDRATE
- structure 425-52
- Gucker, George B.
- biographical material 1171
- Long-Term Frequency Stability for a Reflex Klystron without the Use of External Cavities* 945-58
- GULFPORT, MISSISSIPPI 1746
- GUNCELLE, R. L. 424
- H
- Hageman, H. A. 1860
- Hallenbeck, F. J.
- biographical material 384
- Transistorized A5 Channel Bank for Broadband system* 321-59
- Hamilton, W. C. 451
- Hammersley, J. M.
- biographical material 1172
- Monte Carlo Solution of Bond Percolation Processes in Various Crystal Lattices* 909-20
- HEARING
- basilar membrane, displacement 959-1009
- Hearn, A. H. 1757
- HEAT TRANSFER
- radiation, evaluation 1865-74
- Helly, W. 1246
- Heuristic Remarks and Mathematical Problems Regarding the Theory of Connecting Systems* (V. E. Beneš) 1201-47
- High-Precision Direct-Reading Loss and Phase Measuring Set for Carrier Frequencies* (J. S. Elliott, Jr.) 1493-1517
- Highleyman, Wilbur H.
- Analysis of Inherent Distortion in Asynchronous Frequency-Shift Modulators* 1695-1736
- biographical material 798, 1875-76
- Design and Analysis of Pattern Recognition Experiments* 723-44
- Hill, G. V. 1516
- Holt, Vernon Emerson
- biographical material 1876
- Evaluation of the Net Radiant Heat Transfer between Specularly Reflecting Plates* 1865-74
- Howard, B. T. 661
- Hsu, Jay Chien-Hwai
- biographical material 1876
- Integral Representation of Zero-Memory Nonlinear Functions* 1813-30
- I
- IBM 704 425
- Imperfections in Lined Waveguide* (H. L. Kreipe, H.-G. Unger) 1589-1619
- Integral Representation of Zero-Memory Nonlinear Functions* (J. C. Hsu) 1813-30

INTEGRODIFFERENTIAL EQUATIONS

solutions, periodic 257-68

Interference between Satellite Communication Systems and Common Carrier Surface Systems (H. E. Curtis)

921-43

INTERFEROMETERS

Fabry-Perot 453-62, 1475-76

Intervals between Periods of No Service in Certain Satellite Communication Systems — Analogy with a Traffic System (S. O. Rice) 1671-90

IRON, heat transfer 1868

Irvin, John C.

biographical material 798

Resistivity of Bulk Silicon and of Diffused Layers in Silicon 387-410

Isbansky, M. H. 1516

Israel, J. O. 1516

ITERATION 1337-46

J

JITTER

definition 1696

graph 1698

modulation, pulse code 503-58

modulators, asynchronous 1695-1736
repeaters

self-timed 503-58

Johnson, B. H. 379

Julesz, Bela

Automatic Stereoscopic Presentation of Functions of Two Variables 663-76

biographical material 799

JUNCTIONS

p-n

varactors 803-31

K

Kac, M. 499

Kamps, P. J. 1587

Karnaugh, M. 600

Kasello, E. J. 424

Katz, Henry

biographical material 799

X-Ray Diffraction Study of the Structure of Guanidinium Aluminum Sulfate Hexahydrate 425-52

Kennedy, John T.

biographical material 1876

Use of Solar Radio Emission for the Measurement of Radar Angle Errors 1799-1812

Kinariwala, B. K.

biographical material 1876

Timing Errors in a Chain of Regenerative Repeaters

Part I 1769-80

Part II 1781-98

Kisliuk, Paul P. 1475-76

biographical material 799

Discrimination Against Unwanted Orders in the Fabry-Perot Resonator 453-62

Kleinman, David A. 1475-76

biographical material 799

Discrimination Against Unwanted Orders in the Fabry-Perot Resonator 453-62

Klemm, G. H. 1860

KLYSTRONS See Electron Tubes

Kogelnik, Herwig

biographical material 1478

Generalized Confocal Resonator Theory 1347-69

Kreipe, Hans L.

biographical material 1691

Imperfections in Lined Waveguide

1589-1619

Kurokawa, Kaneyuki

biographical material 384

On the Use of Passive Circuit Measurements for the Adjustment of Variable-Capacitance Amplifiers 361-81

L

Laemmel, A. E. 741

Landau, Henry J.

biographical material 1478

Prolate Spheroidal Wave Functions, Fourier Analysis and Uncertainty — III: The Dimension of the Space of Essentially Time- and Band-Limited Signals 1295-1336

LATTICES, percolation processes 909-20

Leagus, D. C. 451

LEAST SQUARES 425-52

- Lee, C. Y. 884
 Lehner, H. H. 379
 Leonard, D. J. 171
 Leutritz, J., Jr. 1757
 Li, Tingye 1366, 1475-76
 LIFE EXPECTANCY, poles 1737-58
 Lim, Y. S. 1829
 Lindner, Richard
 biographical material 1172
 Semiconductor Surface Varactor
 803-31
 LINEAR TRANSFORMATIONS 1769-80
Lined Waveguide (H.-G. Unger) 745-68
 Livingston, J. R. 1731
 Lloyd, S. P. 499
 Lo, W. C. 1536
 LOGIC CIRCUITS, trouble diagnosis
 1177-1200
 LOGNORMAL DISTRIBUTION 1737-58
 Long, Norwood G.
 biographical material 1478
 *Over-All Characteristics of a TASI Sys-
 tem* 1439-54
*Long-Term Frequency Stability for a Re-
 flex Klystron without the Use of Ex-
 ternal Cavities* (G. B. Gucker)
 945-58
 LOOPS, phase-controlled
 analysis with a sawtooth comparator
 603-33
 LOSS AND PHASE MEASURING SET
 1493-1517
 Lozier, J. C. 1829
 Lumsden, G. Q. 1757
- M**
- McAllister, G. J. 1414
 McCluskey, E. J., Jr.
 biographical material 1876-77
 *Minimum-State Sequential Circuits for
 a Restricted Class of Incompletely
 Specified Flow Tables* 1759-68
 McFadden, J. A. 499
 McMillan, B. 499
 Mahoney, J. J., Jr. 351
 MAINTENANCE DICTIONARIES 1177-1200
 Mallows, C. L. 451
 Mann, Henry
 biographical material 384
 *Companded Coder System for an Experi-
 mental PCM Terminal* 173-226
 Marcuse, Dietrich
 biographical material 1691
 Stimulated Emission of Bremsstrahlung
 1557-71
 MASERS
 Bremsstrahlung 1557-71
 optical
 structure 453-62, 1475-76
 traveling-wave, unidirectional
 1371-97
 MATRICES
 networks
 n-port 857-76
*Maximization of the Fundamental Power
 in Nonlinear Capacitance Diodes*
 (J. A. Morrison) 677-721
 Mayo, John S.
 biographical material 385
 Bipolar Repeater for Pulse Code Signals
 25-97
 Meadows, Henry E.
 biographical material 1478
 *Solution of Systems of Linear Ordinary
 Differential Equations with Periodic
 Coefficients* 1275-94
 MEASUREMENTS
 passive circuit
 adjustment of variable-capacitance
 amplifiers 361-81
 MEASURING SET, loss and phase
 1493-1517
 MEMBRANE, basilar, displacement
 959-1009
 MEMORY, zero, functions 1813-30
*Method for Simplifying Boolean Func-
 tions* (A. H. Scheinman) 1337-46
 Meyer, A. U. 1829
 Meyers, S. T. 1731
 MICROWAVE RELAY SYSTEMS
 channel banks
 A5 321-59
 TD-2 325
 TH
 interference 921-43
 TL
 klystrons 945-58
 receivers 1831-63

- Miedema, Hotze
biographical material 1478
TASI Quality — Effect of Speech Detectors and Interpolation 1455-73
- Miller, Joan E.
Automatic Stereoscopic Presentation of Functions of Two Variables 663-76
biographical material 799
- Miniature Tuned Reed Selector of High Sensitivity and Stability* (L. G. Bostwick) 411-24
- MINIATURIZATION, channel banks 339-44
- Minimum-State Sequential Circuits for a Restricted Class of Incompletely Specified Flow Tables* (E. J. McCluskey, Jr.) 1759-68
- Models for Approximating Basilar Membrane Displacement — Part II. Effects of Middle-Ear Transmission and Some Relations between Subjective and Physiological Behavior* (J. L. Flanagan) 959-1009
- MODULATION
frequency
receiver, solid-state 1831-63
pulse code 1-24
control circuits 11-14
exchange plant 99-141
jitter 503-58
loss 163-67
performance 18-20
power supply 16-17
repeaters, bipolar 17-18, 25-97
signals 15-16, 143-71
speech processing 2-11
system organization 2-18
terminals
coders 173-226
limitations 143-71
- MODULATORS
asynchronous
distortion 1695-1736
jitter 1695-1736
multivibrator 1719-25
reactance tube 1706-09
switched 1709-19
- Monte Carlo Solution of Bond Percolation Processes in Various Crystal Lattices* (H. L. Frisch, S. B. Gordon, J. M. Hammersley, V. A. Vyssotsky) 909-20
- Morris, Robert
biographical material 1479
Further Analysis of Errors Reported in "Capabilities of the Telephone Network for Data Transmission" 1399-1414
- MORRIS, ILLINOIS 1177
- Morrison, J. A.
biographical material 800
Maximization of the Fundamental Power in Nonlinear Capacitance Diodes 677-721
- "MOS" DIODE 803-3
- MULTIVIBRATOR MODULATORS 1719-25
- N
- NAVIGATION
solar radio emission for the measurement of radar angle errors 1799-1812
- NETWORKS
connecting
algebra 1249-74
rearrangeable 1481-92
reswitching 833-55
theory 1201-47
topology 1249-74
- diodes, tunnel 1537-56
- n-port
matrices 857-76
- passive
diodes, tunnel 857-76
- reciprocal
lossless 857-76
- routing, alternate
traffic 769-96
- telephone
data transmission 1399-1414
- Neupauer, E. J. 958
- NOISE
data transmission by telephone network 1399-1414
Gaussian, barrier problem 463-501
miniature tuned reed selectors 411-24
- NON-COMPUTABLE FUNCTIONS 877-84
- NONLINEAR DIODES, power 677-721
- NONLINEAR FUNCTIONS 1813-30
- NORTH, poles in 1737-58

O

- On Non-Computable Functions* (T. Rado) 877-84
- On Rearrangeable Three-Stage Connecting Networks* (V. E. Beneš) 1481-92
- On the Theory of Shrink Fits with Application to Waveguide Pressure Seals* (A. J. Schepis) 885-907
- On the Use of Passive Circuit Measurements for the Adjustment of Variable-Capacitance Amplifiers* (K. Kurokawa) 361-81
- One-Sided Barrier Problem for Gaussian Noise* (D. Slepian) 463-501
- OSCILLATORS
- phase controlled
 - block diagram 228
 - capture techniques 227-56
 - comparator, sawtooth design 559-603
 - properties 559-603
 - filters 237-47
 - synchronization 227-56
 - theory 257-68
 - reactance, variable 1706-09
- O'Sullivan, J. A. 1587
- Otterman, Joseph
- biographical material 1479
 - Grade of Service of Direct Traffic Mixed with Store-and-Forward Traffic* 1415-37
- Over-All Characteristics of a TASI System* (D. B. Bullock, J. M. Fraser, N. G. Long) 1439-54

P

- PCM See Modulation: pulse code
- PACKAGING 1519-36
- PACKING, traffic 1225-34
- Passive Circuit Measurements for the Adjustment of Variable-Capacitance Amplifiers, On the Use of* (K. Kurokawa) 361-81
- PASSIVE MEASUREMENTS, diodes 361-81
- PATTERN RECOGNITION
- experiments
 - analysis 723-44
 - design 723-44

- Paull, Marvin C. 1492
- biographical material 1172
 - Reswitching of Connection Networks* 833-55
- PCM Transmission in the Exchange Plant* (M. R. Aaron) 99-141
- Peck, D. S. 661
- PENTACHLOROPHENOL 1744-46
- PERCOLATION PROCESSES, crystal 909-20
- Performance Limitations of a Practical PCM Terminal* (J. R. Gray, R. H. Shennum) 143-71
- Pfarrer, R. C. 1436
- PHASE AND LOSS MEASURING SET 1493-1517
- PHYSIOLOGY, basilar membrane, displacement 959-1009
- PINE POLES 1737-58
- Pinson, E. N. 741
- PLANT
- exchange
 - modulation, pulse code 99-141
 - traffic 1231-34
- PLATES, heat transfer 1865-74
- POLES
- decay 1737-58
 - inspections, scheduling 1737-58
 - lifetimes 1737-58
- Pollak, Henry O. 499
- biographical material 1479
 - Prolate Spheroidal Wave Functions, Fourier Analysis and Uncertainty — III. The Dimension of the Space of Essentially Time- and Band-Limited Signals* 1295-1336
- PRESERVATIVES, wood 1737-58
- PRESSURE SEALS 885-907
- PROBABILITIES
- averages 269-78
 - busy periods 279-310
 - delays, distribution 311-20
 - percolation processes 909-20
 - poles, lifetimes 1737-58
 - traffic theory 1201-47
- Probability Distribution for the Phase Jitter in Self-Timed Reconstructive Repeaters for PCM* (M. R. Aaron, J. R. Gray) 503-58

Prolate Spheroidal Wave Functions, Fourier Analysis and Uncertainty — III. The Dimension of the Space of Essentially Time- and Band-Limited Signals (H. J. Landau, H. O. Pollak) 1295-1336

Properties and Design of the Phase-Controlled Oscillator with a Sawtooth Comparator (C. J. Byrne) 559-602

PULSE(S)

trains

periodic 1769-80

random 1781-97

PULSE CODE MODULATION *See* Modulation

Q

QUEUING

averages 269-78

busy periods 279-310

delays

distribution 311-20

TASI system 1439-54

R

RADAR, *sun*, as reference 1799-1812

RADIATION

gamma 1573-88

ionizing

diffusion, measurement 1573-88

solar: 1799-1812

thermal 1865-74

RADIO ASTRONOMY

solar emission 1799-1812

RADIO RELAY SYSTEMS *See* Microwave Relay Systems

RADIO SEXTANTS 1799

RADIO TUBES *See* Electron Tubes

Rado, Tibor

biographical material 1172

On Non-Computable Functions 877-84

Realizability of Multiport Structures Obtained by Imbedding a Tunnel Diode in a Lossless Reciprocal Network (I. W. Sandberg) 857-76

Rearrangeable Three-Stage Connecting Networks (V. E. Beneš) 1481-92

RECEIVERS, solid-state 1831-63

RECOGNITION, pattern 723-44

REEDS, selector, tuned 411-24

Reich, G. 828

Reliability of Components for Communication Satellites (I. M. Ross) 635-62

REPEATERS

bipolar

configuration 28; block diagram 29

equalization 30-49

features 26-28, 73-86

modulation, pulse code 17-18, 25-97

performance 87-96

regenerator 66-73

timing 55-66

voltage 49-55

reconstructive, jitter 503-58

regenerative, timing 1769-97

Resistivity of Bulk Silicon and of Diffused Layers in Silicon (J. C. Irvin) 387-410

RESONATORS

confocal, theory 1347-69

Fabry-Perot, discrimination

453-62, 1475-76

Reswitching of Connection Networks (M. C. Paull) 833-55

Rice, Stephen O. 499, 541, 941

biographical material 385, 1692

Intervals between Periods of No Service in Certain Satellite Communication Systems — Analogy with a Traffic System 1671-90

Single-Server Systems—

I. Relations between Some Averages 269-78

II. Busy Periods 279-310

Rife, D. C. 1731

Rigrod, W. W. 1366

Rinehart, James D.

biographical material 1692

Characteristics of the Service Provided by Communications Satellites in Uncontrolled Orbits 1621-70

Riney, Thomas D.

biographical material 1692

Thermoclastic Stresses in Balanced and Unbalanced Seals 1519-36

Riordan, John 1246

Robbins, Marilyn F.

biographical material 1692

- Characteristics of the Service Provided by Communications Satellites in Uncontrolled Orbits* 1621-70
- Roberts, Spencer W.
biographical material 1877
Scheduling of Pole Line Inspections 1737-58
- Romanow, W. R. 451
- Rosenblatt, M. 499
- Rosenzweig, W.
biographical material 1693
Diffusion Length Measurement by Means of Ionizing Radiation 1573-88
- Ross, Ian M.
biographical material 800
Reliability of Components for Communication Satellites 635-62
- Rosson, J. W.
biographical material 1877
Use of Solar Radio Emission for the Measurement of Radar Angle Errors 1799-1812
- ROUTING, alternate, automatic
traffic 769-96
- Rowe, Harrison E.
Approximate Solutions for the Coupled Line Equations 1011-29
biographical material 1172
Transmission in Multimode Waveguide with Random Imperfections 1031-1170
- Rowlinson, D. E. 600
- Rusin, F. P. 216
- Ruthroff, C. L. 1860
- Ryder, R. M. 827
- S
- Saari, Veikko R.
biographical material 1877
Solid-State Receiver in the TL Radio System 1831-63
- Sandberg, Irwin W.
biographical material 1173, 1693
Realizability of Multiport Structures Obtained by Imbedding a Tunnel Diode in a Lossless Reciprocal Network 857-76
- Tunnel Diode as a Linear Network Element* 1537-56
- SATELLITES
communication
components, reliability 635-62
interference 921-43
service 1621-70
intervals 1671-90
- SAWTOOTH COMPARATORS 559-633
- Schachtman, Marshall G.
biographical material 1479
TASI Quality — Effect of Speech Detectors and Interpolation 1455-73
Scheduling of Pole Line Inspections (S. W. Roberts) 1737-58
- Scheinman, Arnold H.
biographical material 1480
Method for Simplifying Boolean Functions 1337-46
- Schepis, A. J.
biographical material 1173
On the Theory of Shrink Fits with Application to Waveguide Pressure Seals 885-907
- Schlegel, W. A. 1536
- Schneider, H. A. 600
- Schulz-DuBois, E. O. 1397
- Seovil, Henry E. D.
biographical material 1480
Unidirectional Traveling-Wave Optical Maser 1371-97
- SEALS
balanced, stresses 1519-36
unbalanced, stresses 1519-36
waveguides 885-907
- Seidel, H. 379
- SELECTORS
reed
tuned 411-24
exploded view 414
- SEMICONDUCTOR(s)
diffusion, measurement 1573-88
seals 1519-36
Semiconductor Surface Varactor (R. Lindner) 803-31
- SERVICE
satellites, communication 1621-70
intervals 1671-90

SERVICE TIMES

- averages 269-78
- busy periods 279-310
- delays, distribution 311-20

SEXTANTS, radio 1799

Shennum, R. H.

- biographical material 385

*Performance Limitations of a Practical**PCM Terminal* 143-71

SHRINK FITS 885-907

SIGNALS, SIGNALING

- band-limited 1295-1336

SILICON

- diffusion, measurement 1573-88

- layers, resistivity 387-410

n-type

- impurities, measurement 387-410

- resistivity, measurement 387-410

p-type

- impurities, measurement 387-410

- resistivity, measurement 387-410

- resistivity 387-410

- temperature 387-410

Single-Server Systems (S. O. Rice)

- I. Relations between Some Averages* 269-78

- II. Busy Periods* 279-310

Skinner, J. G. 1397

Slepian, David 541, 1481

- biographical material 800

One-Sided Barrier Problem for Gaussian Noise 463-501

Slonszewski, T. 1516

Smits, F. M. 1587

Solid-State Receiver in the TL Radio System (W. E. Ballentine, V. R. Saari, F. J. Witt) 1831-63*Solution of Systems of Linear Ordinary Differential Equations with Periodic Coefficients* (H. E. Meadows)

1275-94

Some Traffic Characteristics of Communications Networks with Automatic Alternate Routing (J. H. Weber)

769-96

SOUTH, poles in 1737-58

SOUTH ORANGE, NEW JERSEY 24

SPEECH

- miniature tuned reed selectors 411-24

- modulation, pulse code 2-11

- TASI system 1439-73

SQUARES, least 425-52

STEEL (stainless), heat transfer 1868

STEREOSCOPY, presentation of variables 663-76

Stimulated Emission of Bremsstrahlung

(D. Marcuse) 1557-71

STORE-and-FORWARD TRAFFIC 1415-37

Straube, Harold M.

- biographical material 385

Companded Coder System for an Experimental PCM Terminal 173-226

STRESSES

- seals, thermoelastic 1519-36

SUBMARINE CABLES

- TASI system 1439-73

SUMMIT, NEW JERSEY 24

Sumner, E. E. 24, 97, 136

SUN, emission 1799-1812

Sutter, D. M. 958

SWITCH(ES), reed, tuned 411-24

SWITCHING

- reswitching of connecting networks 833-55, 1481-92

SWITCHING SYSTEMS

- connecting, theory 1201-47

electronic

- description 1178-80

- maintenance 1177-1200

- performance 1211-14

T

TD-2 MICROWAVE RELAY SYSTEM. *See* Microwave Relay SystemsTH MICROWAVE RELAY SYSTEM. *See* Microwave Relay SystemsTL MICROWAVE RELAY SYSTEM. *See* Microwave Relay Systems

TABLES, flow

- circuits, sequential, minimum 1759-68

Takács, Lajos F.

- biographical material 386

Delay Distributions for Simple Trunk Groups with Recurrent Input and Exponential Service Times 311-20TASI Quality — *Effect of Speech Detectors and Interpolation* (H. Miedema, M. G. Schachtman) 1455-73

- TASI SYSTEM 1439-73
 Taylor, James A. 1757
 TEFLON, shrink fits 885-907
 TELEGRAPHIST'S EQUATIONS, GENERAL-
 IZED
 waveguide, lined, imperfect 1590-94
 TELETYPE CORPORATION 1198
 TERMINALS
 modulation, pulse code
 coders 173-226
 limitations 143-71
 TEST(s), TESTING
 diodes 361-81
 TEST PLOTS 1746
*Theory of Shrink Fits with Application to
 Waveguide Pressure Seals, On the (A.
 J. Schepis) 885-907*
*Thermoelastic Stresses in Balanced and
 Unbalanced Seals (J. W. Elek, T. D.
 Riney) 1519-36*
 Tillotson, L. C. 1860
 TIME ASSIGNMENT SPEECH INTERPOLA-
 TION 1439-73
 TIMING
 bipolar repeaters 55-56
*Timing Errors in a Chain of Regenerative
 Repeater (B. K. Kinariwala)*
 Part I 1769-80
 Part II 1781-97
 TOPOLOGY
 networks, connecting 1249-74
 Tower, L. R. 1471
 Townsend, H. W. 1436
 TRACKING SYSTEMS, sun, as reference
 1799-1812
 TRAFFIC
 averages 269-78
 busy periods 279-310
 delays 311-20
 direct 1415-37
 exchange plant 1231-34
 grades 1415-37
 networks, connecting 833-55, 1481-92
 packing 1225-34
 routing, alternate, automatic 769-96
 satellites, communication 1671-90
 store-and-forward 1415-37
 TASI system 1439-54
 theory 1201-47
*Traffic Characteristics of Communications
 Networks with Automatic Alternate
 Routing (J. H. Weber) 769-96*
 TRAINS
 pulses
 periodic 1769-80
 random 1781-97
 TRANSATLANTIC TELEPHONE CABLE
 TASI system 1439-73
 TRANSFORMATIONS, linear
 pulses 1769-97
 TRANSISTOR(s)
 base, diffused 1831
 channel bank, A5 321-59
 junction 1831
*Transistorized A5 Channel Bank for
 Broadband Systems (F. H. Blecher,
 F. J. Hallenbeck) 321-59*
*Transmission in Multimode Waveguide
 with Random Imperfections (H. E.
 Rowe, W. D. Warters) 1031-1170*
 TRAVELING-WAVE TUBES *See* Electron
 Tubes
 Treuting, R. G. 451
 Troffater, K. F. 1471
 TROUBLE DIAGNOSIS, automatic
 1177-2100
 TRUNKS, TRUNKING
 delay distribution 311-20
 grades of service 1415-37
 modulation, pulse code 1-24
 Tsiang, S. H.
 *Automatic Trouble Diagnosis of Com-
 plex Logic Circuits 1177-1200*
 biographical material 1480
 TUBES *See* Electron Tubes
 TUNING
 reed selectors 411-24
 TUNNEL DIODE(s) *See* Diodes
*Tunnel Diode as a Linear Network Ele-
 ment (I. W. Sandberg) 1537-56*
 TWOM (traveling-wave optical maser)
 1371-97

 U
 Uenohara, M. 379, 828
 Ulrich, Werner
 *Automatic Trouble Diagnosis of Com-
 plex Logic Circuits 1177-1200*
 biographical material 1480
 Ultimately Periodic Solutions to a Non-

- linear Integrodifferential Equation*
(V. E. Beneš) 257-68
- UNCERTAINTY 1295-1336
- Unger, Hans-Georg
biographical material 800, 1693
Imperfections in Lined Waveguide
1589-1619
- Lined Waveguide* 745-68
- Unger, S. H. 1768
- Unidirectional Traveling-Wave Optical Maser* (J. E. Geusic, H. E. D. Scovil) 1371-97
- Use of Solar Radio Emission for the Measurement of Radar Angle Errors* (J. T. Kennedy, J. W. Rosson)
1799-1812
- V
- VACUUM TUBES *See* Electron Tubes
- VARACTORS
oxide-*n*-silicon 803-31
surface 803-31
bias 806-07, 809-10, 828-29
description 804-06
theory 807-09
- VARIABLES, two
automatic presentation of the functions of 663-76
- Variational Techniques Applied to Phase-Controlled Oscillators* (R. D. Barnard) 227-56
- Villars, Claude P.
biographical material 386
Companded Coder System for an Experimental PCM Terminal 173-226
- VOLTAGE
repeaters, bipolar 49-55
- Vysotsky, V. A.
biographical material 1173
Monte Carlo Solution of Bond Percolation Processes in Various Crystal Lattices 909-20
- W
- WAITING TIME *See* Queuing
- Waldhauer, F. D. 216
- Warters, William D.
biographical material 1173
Transmission in Multimode Waveguides with Random Imperfections
1031-1170
- WAVE FUNCTIONS 1295-1336
- WAVEGUIDES
coupled, equations 1011-29
imperfections, transmission 1031-1170
- lined
deformed 1611-17
imperfections 1589-1619
propagation 745-68
tolerances 1603-11
rectangular, seals 885-907
seals 885-907
transmission 1031-1170
- Weber, Joseph H. 1436
biographical material 800
Some Traffic Characteristics of Communications Networks with Automatic Alternate Routing 769-96
- Wells, H. G. 351
- Wenny, D. F. 424
- Werner, Mrs. A. 451
- Wilkinson, R. I. 1246
- Wiley, L. F. 1860
- Williams, O. L. 24
- Williams, W. H. 741
- Witt, Francis J.
biographical material 1877
Solid-State Receiver in the TL Radio System 1831-63
- WOOD PRESERVATIVES 1737-58
- X
- X-Ray Diffusion Study of the Structure of Guanidinium Aluminum Sulfate Hexahydrate* (S. Geller, H. Katz) 425-52
- Y
- Young, C. H. 1516
- Z
- Zammataro, S. J. 1516
- ZERO-MEMORY FUNCTIONS 1813-30

